

FIELD STUDY OF THE PREVALENCE OF LAMENESS IN HORSES IN THREE PROVINCES OF IRAN

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ABSTRACT

A population of 364 show jumper horses was examined for signs of lameness in three province of Iran, i.e., Tehran, Isfahan and Fars. The basis of the survey was the inability of the horse to take part in jumping exercise. The diagnosis of lameness was performed using appropriate methods of visual and physical examination, aided by nerve blocking and radiographic examination. In 364 horses, included cases of hygroma, very short heel, tendonitis, fissure in the hoof, navicular syndrome, laminitis, white line disease, splints, sore shine, side bone, ring bone, tumoral calcinosis, sheard heel, incorrect shoeing and wind puff. This suggests that the diagnosis, therapy and prophylaxis of lameness merit a high priority in research efforts to reduce wastage among valubale show jumper horses.

Key words: Horse, lameness, prevalence, clinical signs, radiography.

INTRODUCTION

Lameness is recognized as an abnormality in the way a horse moves or stands. It is usually associated with a painful musculoskeletal condition or a mechanical abnormality affecting locomotion of the animal. Lameness was found to be the most significant factor responsible for failure to race among a group of 314 horses in training in Newmarket, UK (Rossdale *et al.*, 1985). Also investigations of Jeffcott *et al.* (1982) Buchner *et al.* (1996), Ramdy (1997), Oliver *et al.* (1997), Jeffcott (1999), Kane *et al.* (2000), Keegan *et al.* (2000) and Stashak (2002), have shown that lameness is the most important disease and a major reason for training days being lost and wastage in horse industry. Among all types of horses monitored over a 2-year period in the Michigan Equine Monitoring system, lameness was the most common health problem reported and had the second longest duration and the highest number of performance day lost of all disease problems reported (Kane *et al.*, 2000).

This paper describes an investigation of the prevalence of limb lameness in show jumper horses. The study consisted of three phases. The first was clinical examination for signs of lameness in stables and in various movements. The second phase involved a more specific examination of the lame horses and the third phase involved nerve blocking and radiography of the limbs.

MATERIALS AND METHODS

A total of 364 horses were examined for lameness between October, 2003 and December, 2004. The

horses were used for show jumping and belonged to Thoroughbred, Turkmen, Arabian, Mixed (Dokhoon), Caspian (Poney), Kord or Russian breed.

A full history was recorded for each horse. The examination of the limbs started with an inspection and palpation for the presence of oedema, hypertonic muscles, atrophy, hypertrophy and hypersensitivity. All the horses were examined and evaluated for the degree of lameness according to the clinical lameness score of the American Association of Equine Practitioners (AAEP); first at a trot in a straight line, and then when circled on a gravel and on a soft surface. At this survey, parameters investigated included appearance, conformation, board test, hoof test, bending test and complete radiographic examination. The site of lameness was further localised by nerve blocks or intra-articular anesthesia.

RESULTS

Among 364 horses examined, 84 (23.1%) complications related to organocine were investigated (Table 1). From the beginning of the study, the lameness in many horses appeared to originate from more than one leg, and it was therefore decided not to record the site of the lameness. Incorrect shoeing and tendonitis had the highest incidence (4.39 and 3.84% respectively), followed by very short heel and fissure in the hoof (2.74% each), and then white line disease (1.65 %) and sheard heel (1.37 %).

Table 1: Incidence of organocine diseases in various breeds of horses in Iran

Disorders	Breeds							Total n=364	
	Thorough n=42	Tukaman n=160	Arabian n=25	Mixed n=101	Caspian n=10	Kord n=20	Russian n=6	No.	%
Hygroma	1	2			-			3	0.82
Very short heel	2	3	5		-			10	2.74
Tendonitis	2	5	1	2	-	2	2	14	3.84
Fissure in the hoof	1	4	5		-			10	2.74
Navicular syndrome	-	3	-		-			3	0.82
Laminitis	-	2	-		-			2	0.54
White line disease	3	1	-	1	-	1		6	1.64
Splints	1	2	-		-			3	0.82
Sore shine	1	1	-	1	-			3	0.82
Side bone	-	1	-		-			1	0.27
Ring bone	-		-	2	-			2	0.54
Sheard heel	-	3	-	2	-			5	1.37
Tumoral	-		-		-		1	1	0.27
Wind puff	2	1	1	1	-			5	1.37
Incorrect shoeing	2	4	1	4	-	2	3	16	4.39
Total	15	32	13	13	-	5	6	84	23.1
Percent	17.86	38.09	15.48	15.48	-	5.95	7.14	100.0	-

Table 2: Incidence of organocine diseases at different ages in horses in Iran

Disorders	Age (years)					Total n=364	
	2-4 n=81	4-6 n=75	6-8 n=82	8-10 n=77	>10 n=49	No.	%
Hygroma	2	-	1	-	-	3	0.82
Very short heel	1	2	1	4	2	10	2.74
Tendonitis	-	3	6	2	1	14	3.84
Fissure in the hoof	1	3	4	1	1	10	2.74
Navicular syndrome	-	1	1	1	-	3	0.82
Laminitis	-	1	1	-	-	2	0.54
White line disease	-	-	4	1	1	6	1.64
Splints	2	1	-	-	-	3	0.82
Sore shine	2	1	-	-	-	3	0.82
Side bone	-	-	1	-	-	1	0.27
Ring bone	-	1	1	-	-	2	0.54
Sheard heel	-	1	2	1	1	5	1.37
Tumoral calcinosis	-	-	-	1	-	1	0.27
Wind puff	2	1	-	2	-	5	1.37
Incorrect shoeing	2	4	5	3	2	16	4.39
Total	14	19	27	16	8	84	23.10
Percent	16.67	22.62	32.14	19.05	9.52	100.00	-

When the breed of the horses was considered, Tukaman breed showed the highest incidence (38.09%), followed by Thoroughbred (17.86%). No case of lameness was recorded in 10 Caspian horses (Table 1).

The incidence of organocine damages according to age of horses is shown in Table 2. Six to eight years old horses were more affected (32.14%), followed by four to six year olds (22.62%), eight to ten year olds

(19.05%), two to four year olds (16.67%) and more than ten year old horses (9.52 %).

DISCUSSION

In both fore and hind limb lameness, adaptations of the movement of its head can help the horse to reduce the load on the lame limb. The commonest problem

found in equine feet was long toes and dropped heels, which could be caused by bad shoeing, if the shoe was short at the back. The only sure treatment in such cases was to rasp the toe back and extend the heel back by farriery. Good farriery was needed to maintain the basic requirements of a straight hoof pastern axis with the horn at the front of the foot running parallel with that at the back.

In agreement with Rossdale *et al.* (1985) and Stashak (1996), lameness remains one of the most important causes of lost performance in horses. In their survey, 51.9 and 35.8% horses, respectively, showed some degree of lameness, whereas in our study, 23.1% of horses were lame. It is considered that the results obtained in the present survey confirm the opinion of others that lameness is the most significant factor causing wastage among horses.

The results of this survey showed that tendonitis had the second highest incidence (3.84%) of organocine damages among show jumper horses. The prognosis for the treatment of injured tendons depends largely on the degree of damage occurred. If only a proportion of the collagen fiber is ruptured, some sort of treatment can be affected. Also time seems to be the best healer for mild injuries, with new collagen being deposited once all the damaged fibers have been removed by the macrophages. When new collagen is laid, the arrangement of the fibers is originally haphazard but slowly they begin to organise, with the fibers enlarging and forming cross links until the wound is healed. An analysis of the major sites of lameness recorded in 164 horses by Jeffcott *et al.* (1982) revealed a distribution similar to the present investigation.

The third most common organocine damage found in this study was fissure in the hoof of horses (2.74%). This problem can be caused by many factors including dry weather, imbalance of mineral and amino acids in the feed and trauma. Only one case of Tumoral calcinosis disease was observed in the Russian breed.

Regarding the effect of age on lameness, 6-8 years old showed the most involvement, followed by 4-6 years and then 8-10 years. It can be related to the age of maximum performance of horses, because in 6-8 years age group the growth of horse is completed. Kane *et al.* (2000) reported that the percentages of horses 5 or more years of age that were lame at each visit were significantly higher than the percentages under 5 years of age.

The results of this study confirm that lameness is one of the most important causes of lost performance in horses. Diagnosis, therapy and prophylaxis of lameness merit a high priority in research efforts to reduce wastage among valuable show jumper horses.

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