

OCULAR DISORDERS REPORT BOSTON TERRIER

Diagnostic Name	TOTAL DOGS EXAMINED		1991-1999 2723		2000-2009 6803		2010-2012 2004	
	#	%	#	%	#	%	#	%
GLOBE								
0.110 microphthalmia	1	0.0%	1	0.0%	0		0	
EYELIDS								
20.140 ectopic cilia	3	0.1%	0		1	0.0%	0	
20.160 macropalpebral fissure	3	0.1%	9	0.1%	0		0	
21.000 entropion, unspecified	2	0.1%	22	0.3%	4	0.2%	0	
22.000 ectropion, unspecified	2	0.1%	0		0		0	
25.110 distichiasis	80	2.9%	237	3.5%	68	3.4%	0	
NASOLACRIMAL								
32.110 imperforate lower nasolacrimal punctum	7	0.3%	0		0		0	
40.910 keratoconjunctivitis sicca	0		1	0.0%	5	0.2%	0	
NICTITANS								
51.100 third eyelid cartilage anomaly	0		1	0.0%	0		0	
52.110 prolapsed gland of the third eyelid	3	0.1%	5	0.1%	0		0	
CORNEA								
70.220 pigmentary keratitis	11	0.4%	4	0.1%	0		0	
70.700 corneal dystrophy	61	2.2%	169	2.5%	44	2.2%	0	
70.730 corneal endothelial degeneration	5	0.2%	14	0.2%	5	0.2%	0	
UVEA								
93.110 iris hypoplasia	0		1	0.0%	4	0.2%	0	
93.120 iris cyst	1	0.0%	15	0.2%	8	0.4%	0	
93.150 iris coloboma	2	0.1%	4	0.1%	1	0.0%	0	
93.710 persistent pupillary membranes, iris to iris	27	1.0%	271	4.0%	84	4.2%	0	
93.720 persistent pupillary membranes, iris to lens	1	0.0%	8	0.1%	0		0	
93.730 persistent pupillary membranes, iris to cornea	4	0.1%	2	0.0%	0		0	
93.740 persistent pupillary membranes, iris sheets	3	0.1%	5	0.1%	0		0	
93.810 uveal melanoma	0		1	0.0%	0		0	
LENS								
100.200 cataract, unspecified	81	3.0%	0		0		0	
100.210 cataract, significance unknown	42	1.5%	167	2.5%	44	2.2%	0	
100.301 punctate cataract, anterior cortex	23	0.8%	78	1.1%	30	1.5%	0	
100.302 punctate cataract, posterior cortex	11	0.4%	18	0.3%	9	0.4%	0	
100.303 punctate cataract, equatorial cortex	9	0.3%	37	0.5%	10	0.5%	0	
100.304 punctate cataract, anterior sutures	5	0.2%	11	0.2%	8	0.4%	0	
100.305 punctate cataract, posterior sutures	8	0.3%	6	0.1%	2	0.1%	0	
100.306 punctate cataract, nucleus	3	0.1%	1	0.0%	3	0.1%	0	
100.307 punctate cataract, capsular	1	0.0%	7	0.1%	1	0.0%	0	
100.311 incipient cataract, anterior cortex	113	4.1%	353	5.2%	87	4.3%	0	
100.312 incipient cataract, posterior cortex	34	1.2%	87	1.3%	25	1.2%	0	
100.313 incipient cataract, equatorial cortex	52	1.9%	170	2.5%	39	1.9%	0	
100.314 incipient cataract, anterior sutures	14	0.5%	42	0.6%	14	0.7%	0	
100.315 incipient cataract, posterior sutures	13	0.5%	15	0.2%	5	0.2%	0	
100.316 incipient cataract, nucleus	4	0.1%	9	0.1%	3	0.1%	0	
100.317 incipient cataract, capsular	1	0.0%	12	0.2%	0		0	
100.321 incomplete cataract, anterior cortex	0		0		1	0.0%	0	

LENS CONTINUED	1991-1999	2000-2009	2010-2012
100.323 incomplete cataract, equatorial cortex	0	0	2 0.1%
100.330 generalized/complete cataract	31 1.1%	50 0.7%	6 0.3%
100.375 subluxation/luxation, unspecified	5 0.2%	6 0.1%	1 0.0%
VITREOUS			
110.120 persistent hyaloid artery/remnant	11 0.4%	29 0.4%	0
110.135 PHPV/PTVL	1 0.0%	3 0.0%	3 0.1%
110.320 vitreous degeneration syneresis	16 0.6%	93 1.4%	16 0.8%
110.330 vitreous degeneration anterior chamber	0	26 0.4%	9 0.4%
FUNDUS			
97.110 choroidal hypoplasia	0	1 0.0%	1 0.0%
RETINA			
120.170 retinal dysplasia, folds	5 0.2%	19 0.3%	6 0.3%
120.180 retinal dysplasia, geographic	3 0.1%	6 0.1%	1 0.0%
120.190 retinal dysplasia, detached	2 0.1%	0	1 0.0%
120.310 generalized progressive retinal atrophy (PRA)	3 0.1%	7 0.1%	1 0.0%
120.400 retinal hemorrhage	2 0.1%	0	1 0.0%
120.910 retinal detachment without dialysis	1 0.0%	0	0
OPTIC NERVE			
130.110 micropapilla	0	0	1 0.0%
130.120 optic nerve hypoplasia	0	2 0.0%	0
OTHER			
900.000 other, unspecified	0	52 0.8%	113 5.6%
900.100 other, not inherited	13 0.5%	359 5.3%	3 0.1%
900.110 other, suspected as inherited	27 1.0%	35 0.5%	2 0.1%
NORMAL			
0.000 normal globe	2185 80.2%	5637 82.9%	1731 86.4%

BOSTON TERRIER

	DISORDER	INHERITANCE	REFERENCE	BREEDING ADVICE
A.	Distichiasis	Not defined	1	Breeder option
B.	Corneal dystrophy - epithelial/stromal	Not defined	1	Breeder option
C.	Corneal dystrophy - endothelial	Not defined	1, 2	NO
D.	Glaucoma	Not defined	1, 3, 8	NO
E.	Persistent pupillary membranes			
	- iris to iris	Not defined	1	Breeder option
	- all other forms	Not defined	7	NO
F.	Cataract	Autosomal Recessive	1, 4-6, 9, 10	NO
** A DNA test is available for early onset cataract				
G.	Vitreous Degeneration	Not defined	7	Breeder option
	- syneresis	Not defined	11	Breeder option

Description and Comments

A. Distichiasis

Eyelashes abnormally located on the eyelid margin which may cause ocular irritation. Distichiasis may occur at any time in the life of a dog. It is difficult to make a strong recommendation with regard to breeding dogs with this entity. The hereditary basis has not been established although it seems probable due to the high incidence in some breeds. Reducing the incidence is a logical goal. When diagnosed, distichiasis should be recorded; breeding discretion is advised.

B. Corneal dystrophy- epithelial/stromal

A non-inflammatory corneal opacity (white to gray) present in one or more of the corneal layers; usually inherited and bilateral.

BOSTON TERRIER - 2

C. Corneal dystrophy-endothelial

Corneal endothelial dystrophy is an abnormal loss of the inner lining of the cornea that causes progressive fluid retention (edema). With time the edema results in keratitis and decreased vision. This usually does not occur until the animal is older.

In the Boston terrier, this is a primary degenerative endothelial disease leading to progressive and permanent corneal edema. It is not known if this disease is an inherited disorder. There is no sex predilection. The condition is observed in older dogs, 6 to 13 years of age with a mean of 9.5 years. The corneal edema starts asymptotically in the dorsal temporal corneal quadrant of one eye and slowly progresses medially, eventually involving the entire cornea. Typically, it becomes bilateral. In the later stages, discomfort, intracorneal bullae with subsequent ulceration and keratoconus may develop.

D. Glaucoma

Glaucoma is characterized by an elevation of intraocular pressure (IOP) which, when sustained, causes intraocular damage resulting in blindness. The elevated intraocular pressure occurs because the fluid cannot leave through the iridocorneal angle. Diagnosis and classification of glaucoma requires measurement of the IOP (tonometry) and examination of the iridocorneal angle (gonioscopy). Neither of these tests is part of a routine screening exam for certification.

E. Persistent pupillary membranes (PPM)

Persistent blood vessel remnants in the anterior chamber of the eye which fail to regress normally during the first three months of life. These strands may bridge from iris to iris, iris to cornea, iris to lens, or form sheets of tissue in the anterior chamber. The last three forms pose the greatest threat to vision and when severe, vision impairment or blindness may occur.

F. Cataract

A partial or complete opacity of the lens and/or its capsule. In cases where cataracts are complete and affect both eyes, blindness results. The prudent approach is to assume cataracts to be hereditary except in cases known to be associated with trauma, other causes of ocular inflammation, specific metabolic diseases, persistent pupillary membrane, persistent hyaloid or nutritional deficiencies. Cataracts may involve the lens completely (diffuse) or in a localized region.

The Boston terrier has at least two distinct forms of inherited cataract. One type has an onset before 6 months of age with rapid progression to complete opacity prior to 2 years old.

A mutation in HSF4 appears to be responsible for early this type of cataract. A second type of cataract occurs after 4-5 years of age with variable progression. Genetic testing is available. Please refer to Genetic Testing for Canine Ocular Disorders Section.

G. Vitreous degeneration

A liquefaction of the vitreous gel which may predispose to retinal detachment and/or glaucoma. Either condition may cause blindness.

References

1. ACVO Genetics Committee, 1999 and/or Data from CERF All-Breeds Report, 1991-1998.
2. Martin CL, Dice PF: Corneal endothelial dystrophy in the dog. J Am Anim Hosp Assoc 18:327, 1982.
3. Slater, MR; Erb, HN: Effects of risk factors and prophylactic treatment on primary glaucoma in the dog. J Amer Vet Med Assoc. 188:1028, 1986.
4. Curtis R: Late onset cataract in the Boston terrier. Vet Res 115:755, 1984.
5. Barnett KC: The diagnosis and differential diagnosis of cataract in the dog. J Small Anim Pract 26:305, 1985.
6. Barnett KC: Hereditary cataract in the dog. J Small Anim Pract 19:109, 1978.
7. ACVO Genetics Committee, 2005 and/or Data from CERF All-Breeds Report, 2003-2004.
8. Gelatt KN, Mackay FO: Prevalence of breed-related glaucomas in pure-bred dogs in North America. Vet Ophthal. 2:97, 2004.
9. Mellersh CS, Pettitt L, Forman OP, et al: Identification of mutations in HSF4 in dogs of three different breeds with hereditary cataracts. Vet Ophthalmol 9:369-378, 2006.
10. Mellersh CS, Graves KT, McLaughlin B, et al: Mutation in HSF4 associated with early but not late-onset hereditary cataract in Boston terrier. J Heredity 98(5):531-533, 2007.
11. ACVO Genetics Committee, 2011 and/or Data from CERF All-Breeds Report, 2009.

updated 2011