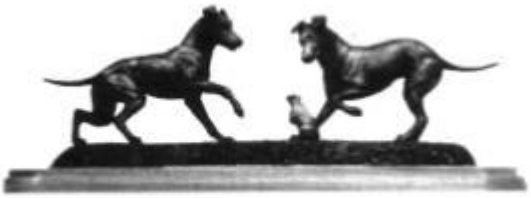

THE BRITISH MANCHESTER TERRIER CLUB

Confidential health survey of The British Manchester Terrier Club

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Part 1: Mortality and Lifespan

Confidential health survey of The British Manchester Terrier: Mortality and life span

Introduction

The Manchester Terrier is considered to be the oldest of all identifiable terrier breeds, with a dog closely resembling the breed today being described in books as early as 1790 (de Lavis-Trafford and Clowes, 1997). This breed is classified as a "vulnerable native breed" by The Kennel Club as there are fewer than 300 puppy registrations in the UK each year.

This survey was conceived in collaboration with The British Manchester Terrier Club (BMTC), to carry out a confidential survey with the aim to achieve a response rate better than that achieved in the 2004 Purebred dog health survey which was anonymous. The aim was to gather health information on as many of the UK's population of Manchester Terriers as possible to establish what health conditions are affecting the breed today and to enable breeders to work at eliminating serious health problems which may have an inherited component.

Methods

The survey forms were created using a questionnaire design package (Cardiff TELEform®). The questions were developed and refined specifically for the Manchester Terrier breed over several months and there were numerous iterations of the questionnaire before the final version was created.

Survey packs were sent out to members of the BMTC and other known owners/breeders of Manchester Terriers in the UK from March to July 2009. The survey pack contained:

1. Main survey form, 1 per live Manchester Terrier.
2. Mortality form, 1 per 4 Manchester Terriers which had died.
3. Owner & vet details form.
4. Covering letter with tear-off slip to request additional forms.
5. Self-addressed postage-paid reply envelope.

A glossary showing a list of some possible conditions with definitions of terms was made available through the BMTC's website and chat group. Reminder cards were sent out at the end of May 2009.

This report relates to the mortality form, on which owners were asked to report all deaths of Manchester Terriers (MTs) they had owned. Information requested included the MT's registered name, date of birth, date of death and/or age at death, cause of death, whether the MT died or was euthanised and whether a post mortem examination was performed. Owners were asked to be as specific as possible when reporting cause of death and we suggested contacting their veterinary surgeon if they had difficulty remembering. Returned questionnaires were scanned and verified using specialised information capture software (Cardiff TELEform®). The scanned and verified data were exported into an Access® (Microsoft) database for checking and recoding and from there were exported to an Excel® (Microsoft) spreadsheet for analysis. Diagnostic categories were developed for cause of death by firstly grouping diseases by organ system affected. Organ system categories included cardiac, gastrointestinal, hepatic, neurologic and renal. Additional categories were included for autoimmune, behavioural, cancer, infectious disease, perioperative death, trauma and unknown. A category for "old age" was used when either age or old age was stated as the cause of death, or when age was stated together with another cause such as dementia, heart failure or hind limb paralysis. Age at death is reported as median (minimum – maximum) as is appropriate for skewed data. T tests or nonparametric equivalents were used to compare age at death due to different causes.

Results

In total 101 deaths were reported, but only 96 were included in the analysis. Those dogs for which either age at death or dates of birth and death had not been provided were not used. Seventy one Manchester Terriers had been euthanised (median age 11 years and 10 months, min 3 months – max 15 years and 3 months) and 24 died (median age 12 years and 4 months, min 2 years and 6 months – max 17 years and 6 months), 2 unspecified. Median age at death overall was 12 years (3 months - 17 years and 6 months). Half of the Manchester Terriers in this survey were still alive at 11 years of age, and 20% were still alive at 14 years of age (Figure 1). A post mortem examination had been performed on only 1 Manchester Terrier, who had died of pancreatic cancer. The three most frequently reported causes of death were "old age" (31%), cancer (23%) and renal failure (15%) (Table 1, Figure 2).

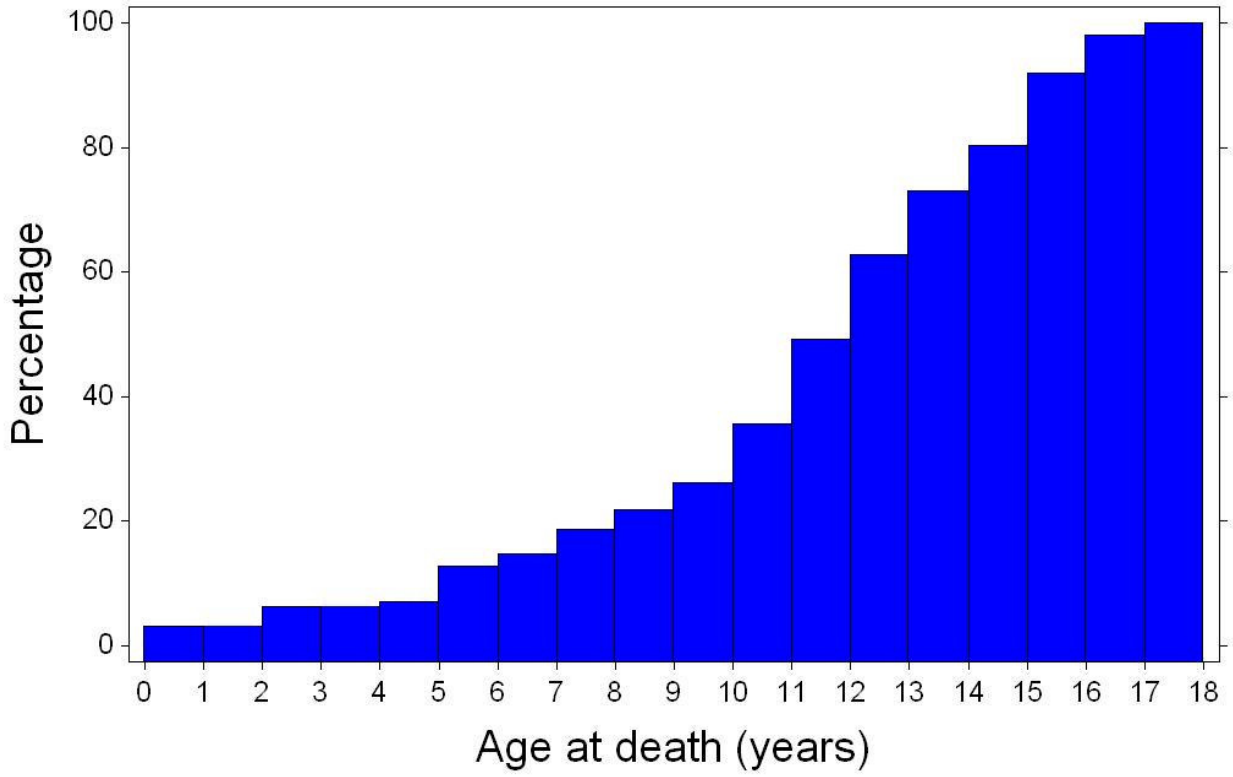

Figure 1: Cumulative distribution of deaths by age.

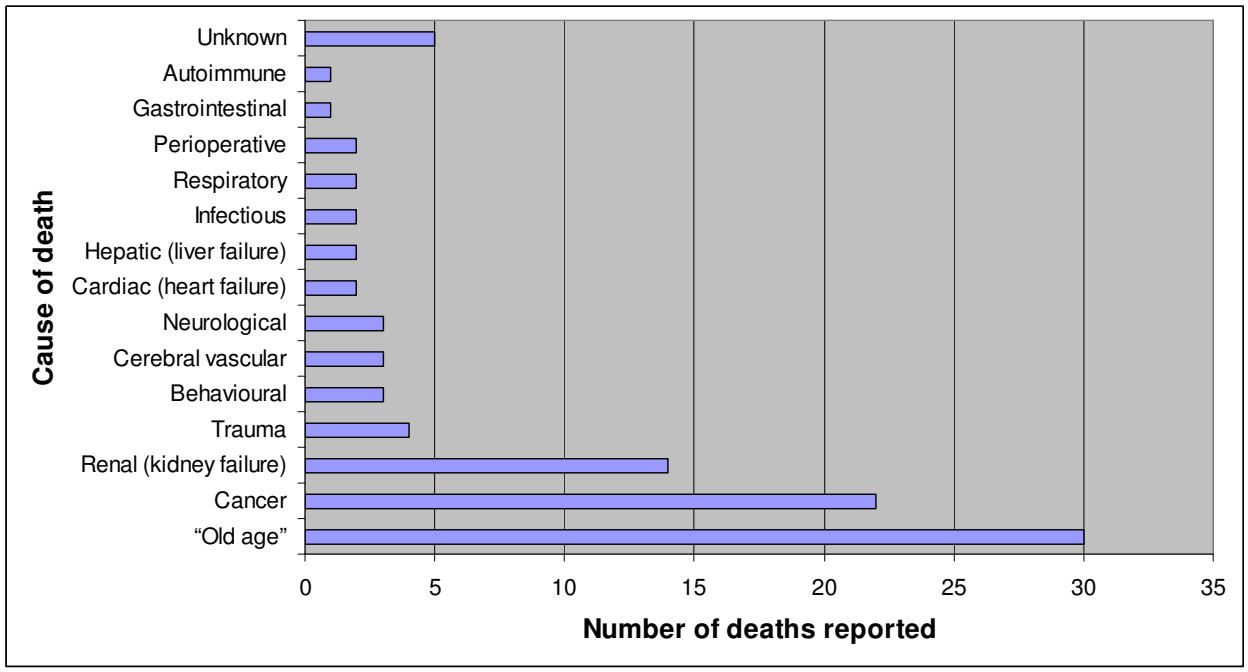

Figure 2: Number of deaths due to different disease conditions in 96 Manchester Terriers.

Table 1. Cause of death/reason for euthanasia and age at death in descending order of total number of deaths.

Cause of death	Number of MTs		Total number of deaths	Age at death		
	Died	Euthanised		Median	Minimum	Maximum
"Old age"	5	25	30	14.42	11.0	16.67
Cancer[1]	1	21	22	11.42	5.5	15.17
Renal (kidney failure)	4	10	14	9.92	5.67	15.33
Trauma[2]	4	0	4	1.5	0.83	5.33
Cerebral vascular ("stroke")	0	3	3	16.0	15.17	16.25
Neurological[3]	0	3	3	6.0	2.5	15.0
Behavioural (aggression)	0	3	3	4.67	2.5	5
Cardiac (heart failure)	2	0	2	11.92	11.83	12.0
Hepatic (liver failure)	0	2	2	10.08	9.25	10.83
Infectious (agent unknown)	1	1	2	12.33	11.42	13.25
Respiratory[4]	1	1	2	13.42	12.83	13.92
Perioperative	2	0	2	11.67	11.33	12.0
Gastrointestinal[5]	0	1	1	10.5		
Autoimmune[6]	1	0	1	12.67		
Unknown	4	1	5	11.83	0.25	13.08
TOTAL	25	71	96	12.0	0.25	16.67

[1] 5 type/location unspecified, 3 lymphosarcoma, 2 cardiac tumour, 2 tumour on hind leg, 1 tumour on front leg, 1 stomach, 1 brain, 1 heart and liver, 1 liver, 1 ovary, 1 thoracic, 1 abdominal, l pancreatic, 1 lung.

[2] 2 road traffic accident, 1 accident in the home, 1 believed shot.

[3] 2 seizures, 1 choroid plexus papilloma.

[4] 1 emphysema, 1 pulmonary hypertension secondary to respiratory condition.

[5] Chronic Inflammatory Bowel Disease

[6] Immune-mediated haemolytic anaemia

Discussion

These results are similar to those of the 2004 survey of mortality in the Manchester Terrier (Table 2) (The Kennel Club, 2006). The overlapping 95% confidence intervals for the frequency of renal failure as a cause of death in the two surveys suggest that the frequency may not have increased significantly since 2004.

Table 2. Comparison of these results with previous survey:

		2004 Purebred Dog Health Survey	2009 Confidential health survey of the BMTC
Reported results			
Number of deaths reported		32	96
Median age at death		12.83	12.0
Maximum age at death		17.5	17.5
Minimum age at death		0.25	0.92
Top 5 causes of death			
	1	Old age (31%; 95% CIs 17-50%)	Old age (31%; 95% CIs 22-42%)
	2	Cancer (22%; 95% CIs 10-40%)	Cancer (23%; 95% CIs 15-33%)
	3	Stroke (9%; 95% CIs 2-26%)	Renal failure (15%; 95% CIs 8-24%)
	4	Gastrointestinal (9%; 95% CIs 2-26%)	Trauma (4%; 95% CIs 1-11%)
	5	Renal failure (9%; 95% CIs 2-26%)	Stroke (3%; 95% CIs 1-10%)

The proportion of deaths due to renal failure is a cause for concern, particularly considering the relatively young age of some of the Manchester Terriers for whom this was reported to be the cause of death. Half of the reported cases (7 of 14) had died or been euthanised before 10 years of age. Age at death due to renal failure was significantly lower than age at death due to other causes ($p<0.01$). Normal kidneys have huge functional reserves, thus renal disease can extensively damage the kidneys without causing signs of renal impairment. Clinical signs associated with raised circulating blood urea levels do not occur until 75% of nephrons have been lost (Davies, 1998). At this point, the dog is approaching end-stage renal failure and little can be done. Indeed, the scant information I was able to gain by contacting the vets with which the Manchester Terriers who were reported to have died or been euthanised due to renal failure had been registered, indicated that they were likely to have been brought to the vet's in a collapsed state and had not responded to any treatment.

If renal disease and renal failure can be diagnosed early therapeutic interventions, including dietary changes and medication, can be applied that may slow or even halt disease progression (Lees, 2004). An annual health check by a veterinary surgeon, including laboratory testing of blood and urine, is one of the best ways to detect declining renal function (Grauer, 2005). Owners should also be alert for changes that they may notice in their Manchester Terrier, such as decreased appetite and body weight, increased drinking and urine production and the development of bad breath (and

sometimes excessive mobility of the jaw) (Davies, 1998). Owners should consider informing their vet that their may be an increased susceptibility to renal failure at a relatively young age in the Manchester Terrier, and requesting annual health checks including blood and urine analysis, perhaps from the age of 5 years onwards. This may be particularly important in Manchester Terriers who have had a close relative die or be euthanised at a relatively young age due to renal failure, although at the moment there is no evidence to suggest an inherited component to the condition.

While there are many understandable reasons why owners may choose not to have a post mortem examination performed on their pet when it has died, the more accurate information about cause of death that the results of such examinations provide would be invaluable for future studies of Manchester Terrier health. It would be particularly useful to have more information about the exact nature of the "renal failure" which was the third most frequently reported cause of death. The authors are willing to speak with interested owners and veterinary surgeons about how to facilitate post-mortem histopathological diagnosis of renal and other diseases.

Acknowledgments

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