Distribution and morphology of *Mycobacterium bovis* lesions detected at post mortem inspection in cattle slaughtered in Northern Ireland between 2007 and 2016

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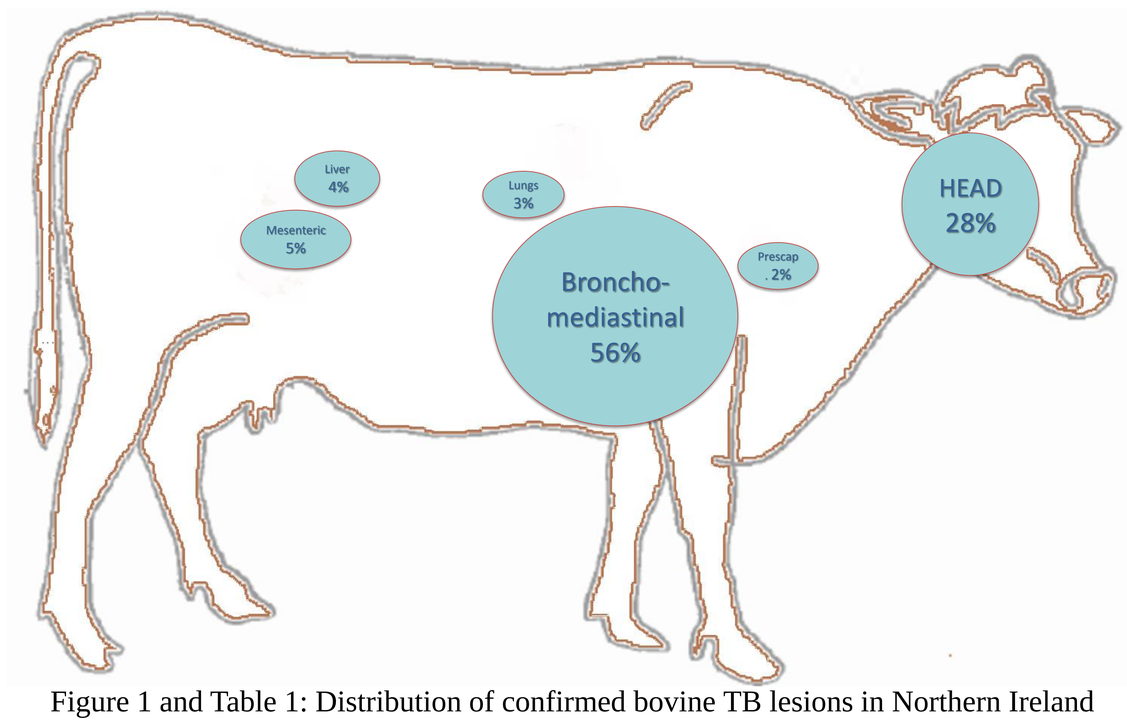
Abstract

A dataset of 48,132 confirmed bovine tuberculosis (bTB) lesions relating to 39,587 animals was analysed.
Most animals (82.7%) had lesions detected in a single lymph node or organ.
The most commonly detected site was the broncho-mediastinal lymph nodes which counted for 56.5% of lesions followed by lymph nodes of the head (27.6%)
In 61.9% of lesions, 9 or more visible tuberculous granulomata were detected.
Most lesions (60.3%) were described as calcified.
The size of 62.5% of lesions was 10mm or greater.

Distribution of bTB lesions



Site description	Percentage of lesions
Broncho-mediastinal l.n.*	56%
Head l.n.*	28%
Mesenteric l.n.*	5%
Liver	4%
Lungs	3%
Prescapular l.n.*	2%
Other	3%

**l.n.=lymph nodes*

Figure 1 and Table 1: Distribution of confirmed bovine TB lesions in Northern Ireland (2007-2016; n = 48,132).

Results

Post mortem records from 11 slaughterhouses throughout Northern Ireland between 01/01/2007 and 31/12/2016 were analysed.

Data of cattle with confirmed bTB and a complete detailed post mortem description were selected.

The final dataset consisted of 39,587 animal records of which 36,792 (93%) were single comparative intradermal tuberculin test (SCITT) reactors and 2,795 (7%) were cattle with lesions at routine slaughter (LRS).

Distribution of bTB lesions

Post mortem inspection detected a single site with bTB lesions in 32,742 (82.7%) cattle and two or more in 6,845 (17.3%) cattle (figure 2).

In animals where only one site had visible lesions, 64.8% were detected in the broncho-mediastinal lymph node and 28.4% in lymph nodes of the head.

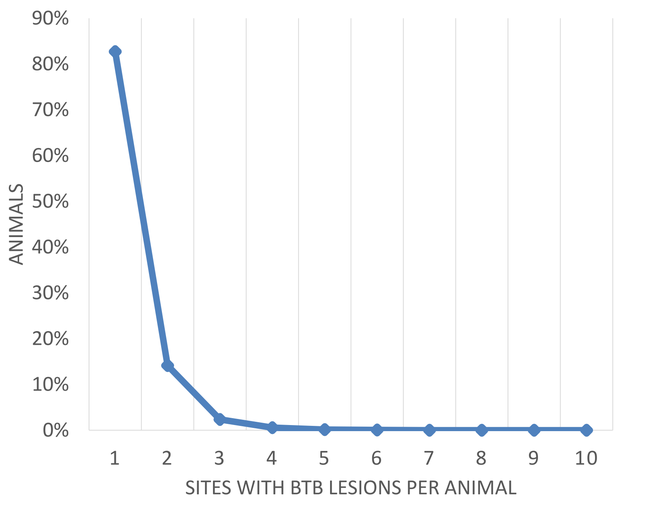


Figure 2: Distribution of the number of sites with bTB lesions per animal.

Morphology of bTB lesions

The number of visible lesions (tuberculous granulomata) detected in a lymph node or organ (site) was 9 or more in 61.9% of records.

The majority of lesions (60.3%) were described as calcified, 33.8% were described as caseous and 5.9% as purulent (Figure 3).

The size in 62.5% of lesions was 10mm or greater.

Risk factors

Univariate analysis was used to identify risk factors associated with the distribution and morphology of lesions.

Age, breed, abattoir, animals bought into the herd and disclosure test type are candidate variables showing association with the distribution and /or morphology of lesions.

Future multivariate analysis will be conducted to investigate the interactions of these risk factors.

Morphology of bTB lesions

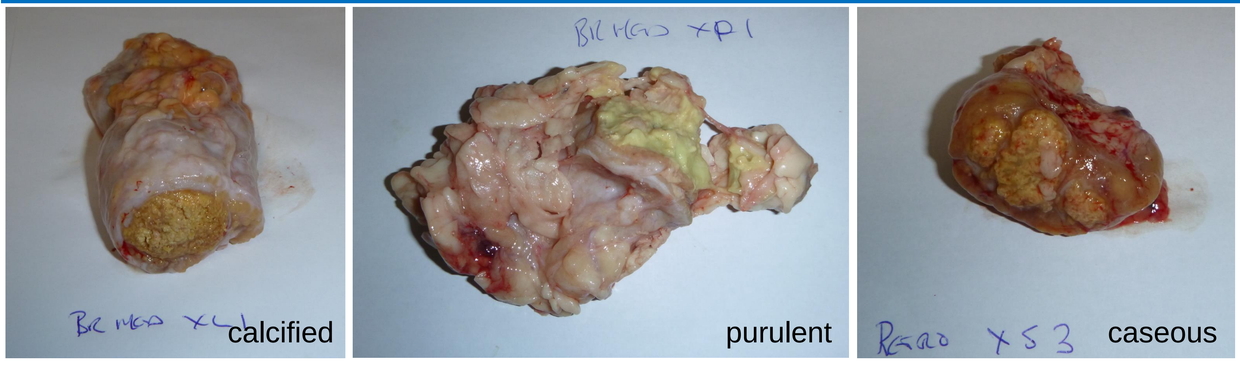


Figure 3: Meat inspectors are classifying bTB lesions in one of three types : calcified , purulent or caseous.

Conclusions

- This observational study aimed to describe post mortem inspection records of bTB confirmed animals.
- Lymph nodes of the thoracic cavity are the most commonly detected sites with bTB, followed by lymph nodes of the head.
- In the majority of animals there was only one site detected with bTB lesions.
- Lesions are usually calcified in SCITT reactors but in LRS animals there is a variety of purulent, caseous and calcified granulomata.

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