Outbreak of Bacillus species in an orthopaedics theatre

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# Background

Bacillus species are ubiquitous gram positive spore forming rods, present in all environments and commonly found in soil and water [1] . Distinguishing true infections from contamination is very difficult due to the widespread distribution of the spores.  Several outbreaks have been reported at healthcare facilities in association with different bacillus species[2]; [3]; [4].

We describe a recent outbreak of bacillus species we experienced within our orthopedics patients.

# Setting

Dumfries and Galloway Royal Infirmary is a newly opened hospital (December 2017), with X beds and X surgical theatres. In March 2018, 2 samples received from the orthopedics theatre’s in the same week isolated bacillus species. One sample was from a removed metal work and a second from a bone sample. A look back in the database identified 1 additional bacillus species identified in the previous week. All isolates were identified in the enrichment bottles, with no growth on direct culture.

An outbreak meeting was convened and cases reviewed.

# Cases

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date | Sample from | Organism | surgery on  | species | maldi score |
| 09.04.18 | Screw Left Femur | Bacillus halosaccharovoran | 2017 | bacillus halosaccharovorans | 1.9 |
| 30.03.18 | Bone right tibia | Bacillus licheniformis |  |  |  |
| 19.03.18 | Screw Rigt foot | Bacillus sp. | Bacillus indicus | 1.4 |  |
| 26.03.18 | Surgical Metalwork left foot | Bacillus sp. | Bacillus simplex | 1.9 |  |

# Investigation

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## Laboratory investigation

Describe SOP

To ensure that no contamination of samples occured in the laboratory, maintenance records of the laboratory were reviewed and were up to date. Air sampling from the class 2 cabinet where these samples are process was obtained and was negative on culture.  Saline from the Ballotini beads batch was also cultured.  Sterile enrichment bottles were incubated

We investigated the process in the laboratory to ensure that contamination to the samples did not occur within the laboratory.

## Theatres Investigation

# Discussion

To include some literature review (summary of outbreaks as below: source : outbreaks database) refer to summary in excel sheet attached of all outbreaks.

References to review

[5]; [6]; [7]; [8]; [2]; [3]; [9]; [10]; [4]; [11][11]; [12]; [13]; [14]; [15]

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