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**Identity and quantity of microorganisms in necrotising fasciitis determined by culture based and molecular methods**

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**Background**

Necrotising fasciitis (NF), commonly known as flesh eating disease, is a fast progressing, potentially lethal infection of the subcutaneous tissue/fascia. Because of the speed of infection immediate diagnosis and therapy (including systemic antimicrobials and aggressive surgical debridements) are required. The infection is often caused by streptococci (especially *Streptococcus pyogenes*), *Staphylococcus aureus* and *Clostridium sp.*

**Objective**

Accurate identification of the microorganisms may add to the knowledge of NF pathogenesis and influence the administration of antibiotics, and thereby potentially improve the outcome for the patients. Here we investigate the applicability of different molecular methods compared to standard culture-based methods.

**Methods**

**DNA extraction test**

- DNA was extracted from sample no. 1-5 using methods I-V (Figure 1).

- Method III and IV gave the highest DNA yield since no MolYsis (Molzym) pretreatment was used (Figure 2).

**Results - Identity**

- Generally the methods used for identification of microorganisms gave concordant results (Table 3).

- In some cases culture resulted in no growth of microorganisms, although bacteria could be found by molecular methods.

- Different molecular methods gave concordant results for the most frequent bacteria.

**Results - Quantity**

- Quantitative PCR confirmed findings of *S. pyogenes* by culture and molecular methods.

- *S. pyogenes* was quantified in sample no. 13 although the bacteria was not found previously.

**Results - Quantity**

- Samples where *S. pyogenes* was not dominant corresponded to samples where other microorganisms had been identified (no. 9, 11 and 13).

**Conclusions**

- The bacteria most often found in the samples was *S. pyogenes*.

- Interestingly, one patient was found to harbour no Streptococci but *Candida albicans*, *Mycoplasma sp.* and *Fusobacterium necrophorum*.

- The molecular methods gave concordant results, and confirmed positive culture findings. However, additional microorganisms were identified.

- Advantages of molecular methods: 1) identification of the pathogen(s) after administration of antibiotics and 2) less time-consuming than conventional culture.

**References**


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