

Fungal infection agents microbiological examination in comparison with direct microscopy

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Introduction

Skin and its derivatives fungal infections are common worldwide. According to WHO data, an average of 300 million people suffer from fungal infections every year(1, 2). The main risk factors for contracting dermatomycoses are immunodeficiency, chronic diseases, menopause, long-term use of antimicrobial agents, skin and nail damage, age. Statistics show that more likely older people suffer from infections caused by dermatomyces. In the laboratory diagnosis of fungal infections, the most often used methods are direct microscopy, microbiological examination and in recent years molecular biological investigation methods(2).

Aims and Objectives

The aim of this study was to collect and compare data of the most used methods in laboratory practice: microbiological investigation and direct microscopy.

Materials and methods

In the period from August 2022 to August 2023, Central Laboratory LTD conducted parallel examination of 2,785 patient samples (skin, mucous membranes, nails) culturing and identification and direct microscopy.

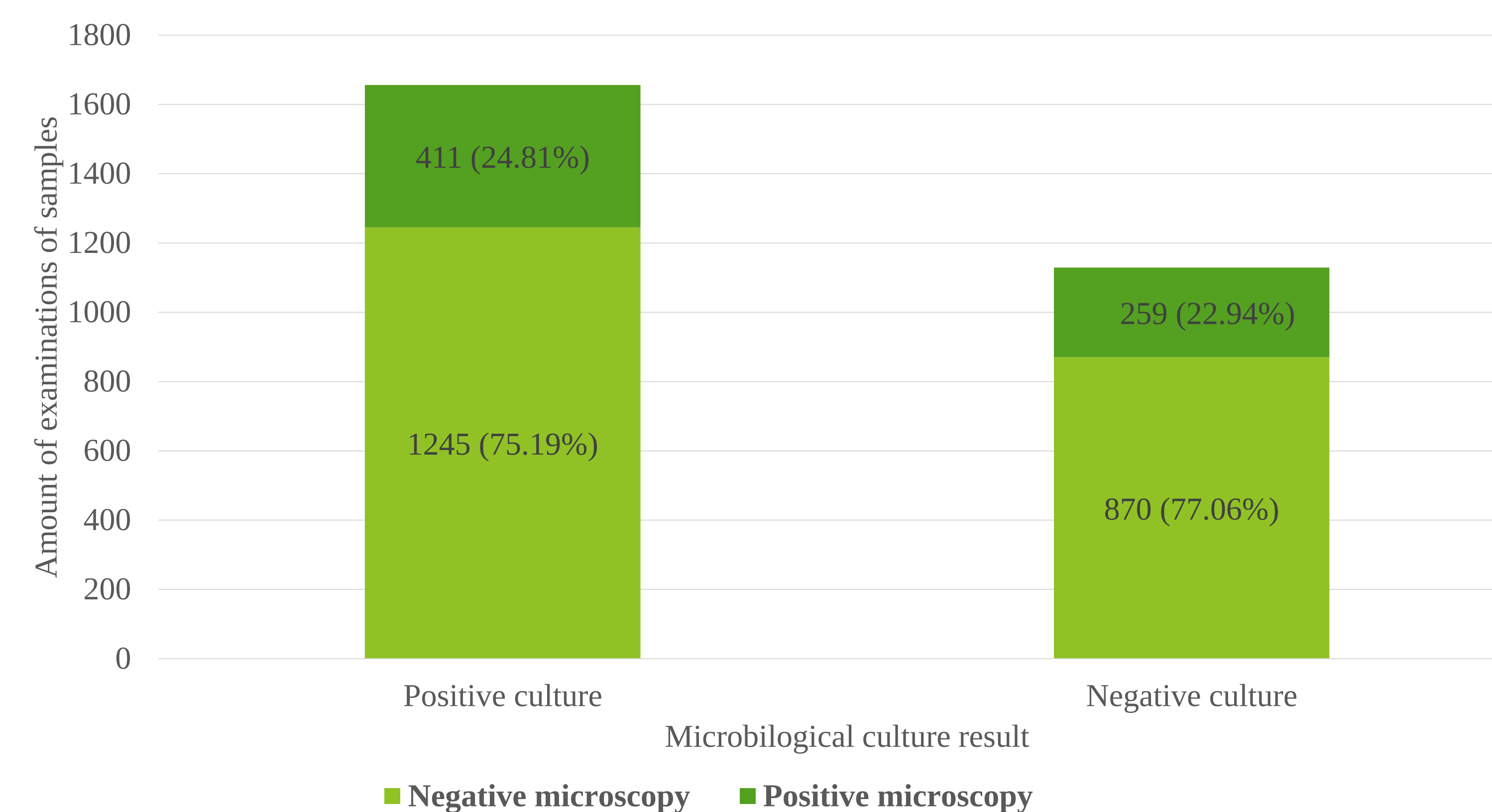


Fig.1 Comparison of fungal culture and direct microscopy results

Results

Out of 2785 samples, 1656 (59.46%) microbiological examinations and 670 (24.06%) direct microscopies were positive for dermatomycosis agents. Out of 1656 positive microbiological examinations, fungal elements were found in 411 (24.81%) samples by the direct microscopy. From 1129 (40.54%) negative samples by microbiological examination in 259 (22.94%) fungal elements were found by the direct microscopy (Fig. 1). The most often isolated pathogens were *Trichophyton sp.*, *Geomyces sp.*, *Candida sp.*, *Aspergillus sp.*, *Scopulariopsis sp.* and *Exophiala sp.*

Conclusions

Microbiological examination is a more sensitive and informative method for the laboratory diagnosis of infections caused by dermatomyces, but the investigation time is longer than with the direct microscopy method. Due to large numbers of negative fungal cultures, but positive direct microscopy findings, it is preferable to do cross examination with both methods. Due to the substantial number of negative samples, it is desirable to apply molecular diagnostics more widely.

References

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