The aim of the study was to test a multiplex real time PCR with High Resolution Melt analysis (mHRM-RT-PCR) on clinical samples for simultaneous detection and identification of *Aspergillus* and *Mucormycetes* spp. in tissue samples.

**Methods**

The study included 44 native and formalin-fixed paraffin-embedded tissue samples from 34 patients with aspergillosis and 12 clinical samples from 10 patients with mucormycosis in Saint-Petersburg between 2013 and 2019 yy. As controls, 21 tissue samples were collected from patients without mycoses. We investigated the native tissue samples by direct microscopy method with calcofluor white. Fungal cultures were obtained by sample inoculation on Sabouraud glucose agar. Histological sections of tissue samples were stained by PAS and Grocott-Gomori's technique. Fungal DNA was extracted from clinical samples by a chloroform-isooamyl extraction method. DNA amplification was performed using *Aspergillus* - and *Mucormycetes* - specific primers pairs separately and EvaGreen based mHRM-RT-PCR on Rotor-Gene 6000 cycler.

**Results**

The mHRM-RT-PCR allows to identify in clinical samples from patients with aspergillosis and mucormycosis the representatives of *Aspergillus* to the genus and *Mucormycetes* to the species level: *Rhizopus arrhizus*, *Mucor racemosus*, *Rhizomucor pusillus*, *Lichtheimia corymbifera* (Fig. 1).

**Example 1.** The investigation of the autopsy material of liver tissue from patient T. with non-Hodgkin's lymphoma and mixed mycosis.

**Example 2.** The investigation of the biopsy material of intestine and brain tissue from patient G. with leukemia and mucormycosis.

**Conclusions**

The multiplex RT-PCR has high sensitivity and specificity in tissue samples of patients with aspergillosis and mucormycosis. This study indicated that the mHRM-RT-PCR may be a useful tool for detection of etiologic agents of mycoses, particularly in the case of a mixed infection by *Aspergillus* spp. and of the order Mucorales.