Presence of cancer-associated fibroblasts (CAFs) is useful cytological factor for diagnosis of pancreatic ductal carcinoma in endoscopic ultrasound fine-needle aspiration cytology

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OBJECTIVE

Endoscopic ultrasound fine-needle aspiration cytology (EUS-FNAC) is known as one of useful diagnostic tool for pancreatic neoplasms. However, it may be difficult to make an accurate diagnosis in case of lack of nuclear irregularity for pancreatic ductal adenocarcinoma (PDAC) cells. In this study, we evaluated the usefulness of cancer-associated fibroblasts (CAFs) in the diagnosis of PDAC.

MATERIALS AND METHODS

• CAFs were defined on EUS-FNAC by two cytological features and showed plump spindle-shaped cells and prominent nucleoli (Figure 1).

• CAFs-like stromal cells (CLSCs) were observed in benign cases and did not satisfy the above definition of CAFs (Figure 2).

• We evaluated the presence of CAFs and CLSCs in 44 PDAC cases and 22 benign cases. Additionally, we measured the nuclear size of CAFs and CLSCs.

RESULTS

• CAFs were observed in 13 (29.5%) of 44 PDAC cases and none of the benign cases. CLSCs were observed in 8 (36.4%) of 22 benign cases.

• The statistical factors were described in Table 1, respectively.

• The mean nuclear size of CAFs was significantly larger than that of CLSCs (Table 2).

DISCUSSIONS

• To the best of our knowledge, none of the previous studies have especially focused on the diagnostic utility of CAFs in cytological specimens.

• This study demonstrated that specificity and PPV of CAFs for the diagnosis of PDAC were 100%. These results indicate that CAFs is one of the powerful diagnostic findings in addition to other conventional findings, such as necrosis, inflammation and mucin.

• The average nuclear size of CAFs was significantly larger than that of CLSCs. It may be possible to distinguish between CAFs and CLSCs by morphological features, including nuclear size.

CONCLUSION

CAFs were only observed in PDAC. The presence of CAFs in EUS-FNAC is an important finding for the accurate diagnosis of PDAC.