Background and aim
Traditionally, the tissue diagnosis of extrahepatic biliary strictures are obtained through cytological brushing or histological biopsies via ERCP; however, the sensitivity of both techniques is only 50%. Recently, cholangioscopy increased the sensitivity up to 60-80% by assessing the visual pattern and by performing targeted biopsies of such lesions; nevertheless, this procedure is technically challenging and expensive. A third diagnostic option is represented by EUS-guided trans-duodenal FNA or FNB, whose adequacy can be further increased by doing either ROSE or the less expensive macroscopic on-site evaluation (MOSE) of the specimens. The aim of the study was to assess the adequacy and the accuracy of FNA and FNB coupled with MOSE for strictures of the common bile duct (CBD).

Material and methods
In this retrospective study we analyzed all the MOSE-guided FNA or FNB EUS procedures for strictures of the CBD effected from 2012 to 2020. Only conscious sedation was used. Lesions <2 cm underwent a cytological aspiration using 25G / 22G FNA needles and alcohol-fixed smeared slides; in case of lesions >2 cm 25G / 22G / 20G FNB needles and formalin fixation were used. One or more needle passes were effected till MOSE was considered satisfactory, that is when 5 slides with thin granular or thread-like material were collected (for FNA), or when the overall length of the cores expelled from the needle into the formalin bottle exceeded 2 cm (for FNB); once obtained these MOSE results, regardless of the number of the needle passes, the EUS procedure was stopped.

Results
FNA, after a mean of 2.7 needle passes, was adequate in 38 out of 43 (88.4%) patients; 26 had a cytological diagnosis of cholangiocarcinoma (true positive); in 12 cases only inflammatory cells were displayed. Of these latter non malignant cases, after one-year follow-up, 5 showed a clinical or radiologic evidence of cancer (false negative), 4 remained asymptomatic (true negative), 3 were lost at follow-up; the overall accuracy was 75.0%. FNB, after a mean of 1.5 needle passes, was adequate in 6 out of 8 cases (75.0%); of these, 5 showed cholangiocarcinoma (true positive) and 1 was negative for malignancy and remained healthy in the follow-up (true negative); the overall accuracy resulted 75.0%. No adverse events occurred.

Conclusions
The EUS-guided tissue acquisition for CBD strictures is safe and quite effective; when MOSE is applyed, FNA and FNB seem equally adequate and accurate, the latter with less needle passes.