

Microbiota and serum tumor markers in patients with pancreatic cystic neoplasm

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Introduction

One of the main precursory lesions for pancreatic cancer is pancreatic cystic neoplasms (PCN).

Differentiation between the benign and malignant cysts is a clinical challenge.

The aim of the study was the assessment of serum tumor markers compared with microbiological status, biochemical parameters, and histopathological results in patients with PCN.

Conclusion

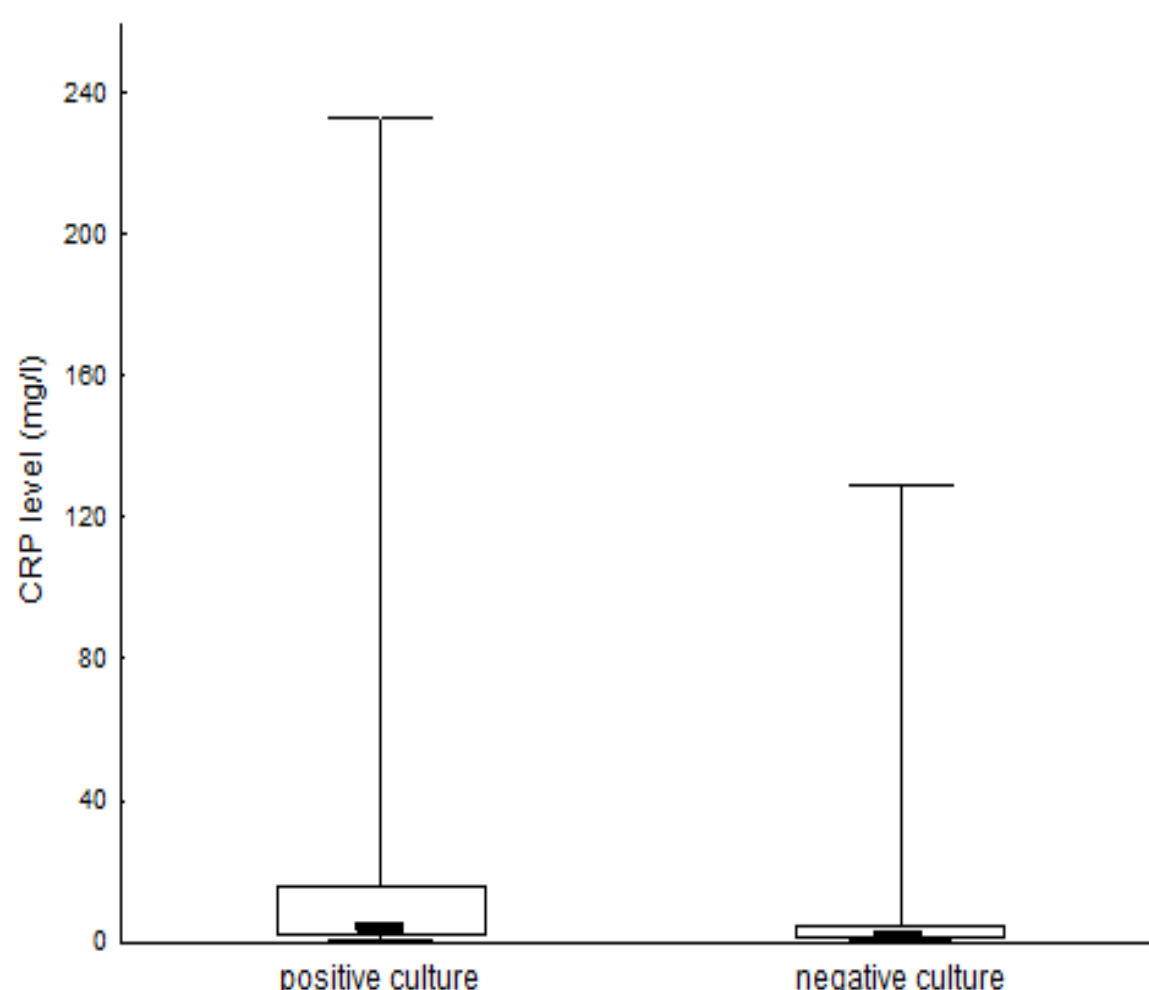
1. Patients with positive intraoperative cultures tended towards a higher incidence of cancers, increased c-reactive protein levels, and longer hospitalization periods.
2. C-reactive protein level had a correlation with tumor marker levels.
3. Elevated c-reactive protein level might be another decision-making marker during the watch-and-wait strategy among the patients with pancreatic cystic neoplasm.
4. In case of the pancreatic cystic neoplasm coexisting with elevated levels of CA19-9, despite of the imaging tests results and the size of the tumor, excision should be considered.

Materials and methods: 59 patients (41 women) with PCN treated in 2022-2023 were included in the study. Preoperatively serum inflammatory: c-reactive protein (CRP) and leucocytosis and tumor markers (CA19-9, CA15-3, CA125, AFP, CEA) were measured. Bacterial culture results were taken from the cyst fluid and bile (in case of cholecystectomy). Histopathological reports were analyzed.

Results

17 of 59 patients (28.81%) had positive culture results. 19 of 59 patients (32.20%) had malignant tumors. Seven (41.18%) patients with positive culture had cancer compared with 12(28.57%) negative patients ($p=0.35$). In the malignant group CA19-9 level was higher than among benign lesions (190.43 ± 427.80 vs. 100.16 ± 506.22 ng/ml; $p=0.02$). Among patients with positive culture, CRP level was higher (31.84 ± 70.91 mg/l vs. 10.94 ± 28.75 mg/l; $p=0.03$) and serum AFP levels were lower (2.34 ± 1.13 vs. 4.08 ± 2.44 ng/ml; $p=0.04$) than in the negative culture group. They had longer hospitalization (14.76 ± 10.73 vs. 9.93 ± 7.05 days; $p=0.03$).

Furthermore, in the malignant group CRP level was positively correlated with CA19-9 level ($R=0.50$; $p=0.03$) and negatively correlated with hospitalization period ($R=-0.46$; $p=0.04$). There was a negative correlation between CRP and AFP levels in the studied group ($R=-0.34$; $p=0.03$). In the negative culture group, there was a negative correlation between CRP and AFP level ($R=-0.51$; $p=0.006$) and positive correlation with CA125 level ($R=0.39$; $p=0.02$).



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Microbiota found in pancreatic fluid culture	Patients
Escherichia coli resistant to amoxicillin + clavulanic acid	1
Klebsiella pneumoniae	2
Enterobacter cloacae resistant to amoxicillin + clavulanic acid	1
Enterococcus faecalis	1
Enterococcus faecium HLAR	1
Enterococcus faecium VRE	1
Staphylococcus aureus	1
Staphylococcus capitis	1
Staphylococcus haemolyticus	1
Staphylococcus hominis	1
Staphylococcus epidermidis	2
Staphylococcus epidermidis resistant to erythromycin and clindamycin	1
Staphylococcus epidermidis MRSA	1
Corynebacterium	1
Microbiota found in the bile culture	Patients
Escherichia coli	4
Klebsiella pneumoniae	1
Enterococcus faecium VRE	1
Enterobacter cloacae	1
Enterococcus faecalis	1