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Case Report

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A Rare Cytopathology Case: Acinar Cell Carcinoma of Pancreas with Intraductal Growth Pattern

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Abstract

Pancreatic acinar cell carcinoma is an unusual pancreatic tumor whose diagnosis based on Fine Needle Aspiration Cytology is not routinely reported. We present a case of a 73 years old male with an incidental finding of a pancreatic tumor mass.

FNAC showed tridimensional BCL10 positive cell-aggregates with moderate nuclear pleomorphism, prominent single nucleoli and eosinophilic granular cytoplasm. Histological study of surgical specimen confirmed the diagnosis.

Keywords: Cytopathology case; Acinar cell carcinoma; Pancreas

Introduction

Acinar Cell Carcinoma (ACC) is a rare pancreatic tumor that represents 1-2% of all pancreatic neoplasms in adults [1]. It is more frequent in males, 7th decade [2]. The largest study series describe different morphologic features [3], including that with thyroid like follicular features [4]. Intraductal growth pattern is associated with indolent course and has rarely been reported; in fact, only two cases have been published by La Rosa S et al [3]. BCL10 is a confident marker [5] that allows differentiating from neuroendocrine tumors.

Case Report

A 73 years old man with lots of oncological family background. Risky factors of the patient: smoker, arterial hypertension and dyslipemia. He had a peripheral artery disease with a right coronary stent in 2009, and another one in celiac trunk in 2014. In a control Computerized Tomography (CT) for celiac trunk stent showed an unusual principal pancreatic duct dilated. In this context it was indicated a Magnetic Resonance Imaging (RMI).

The RMI showed a 1.2 cm tumoral mass in the head of

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pancreas associated to expanded principal pancreatic duct. (Figures: 1a, 1b). An ultrasound guided fine needle aspiration cytology was carried on.

GIEMSA smears showed high cellularity with hematic background. At high magnification tridimensional moruls and pseudorosetoid structures were seen (Figure: 2a). The nuclei were in basal position with moderately pleomorphism and visible nucleoli. Sometimes, acinar groups with prominent granular cytoplasm were noted (Figure: 2b). The same findings were seen in Papanicolau (Figures: 3a, 3b).

Apart from ACC, other possible diagnosis was considered. Differential diagnosis was raised first with neuroendocrine tumor. Secondly solid and pseudopapillary neoplasia was considered, due to radiological duct expansion. Prominent reactive ductal epithelial changes suggested also pancreatic ductal carcinoma diagnosis.

The bloc showed a blue cellularity in the fibrin background. This cellularity had the same features in cytology smears. There were many acinari structures that included cells with blue basal nuclei and scanty apical granular cytoplasm (Figures: 4a, 4b).

Neoplastic cells expressed strong diffuse cytoplasmic BCL10 staining and heterogeneous moderate CD10 staining (Figure: 7) (Figure: 8). However, chromogranin and synaptophysin were completely negative (Figures: 5a, 5b). Proliferative Ki67 index was high, close to X% (Figure 6).

The monoclonal antibody BCL10 is a very specific marker for ACC. It is positive in ectopic and metaplastic pancreatic tissue too [4]. However, features of atypia and high replicative index, were enough for a malignant cytodiagnosis, suggestive of acinar cell carcinoma. Therefore, after radiological discarding of distant extension of the disease, cephalic duodenopancreatectomy was conducted (Figures: 9a, 9b). Grossy, in the surgical specimen a white and multinodular neoplasm of 3 cm size was seen, in relation to atrophic pancreatic tissue. We also saw the cysts in RMI and EUS corresponding to dilated pancreatic ducts, because of the intraductal growth pattern of the tumor (Figure: 10). Hematoxylin and eosin staining revealed a well circumscribed nodular neoplasm, highly cellular, rising on principal pancreatic duct (Figure: 11.1). It was compound by multiple acinar structures delimited by neoplastic cells with basal nuclei, moderate nuclear atypia, conspicuous nucleoli and PAS positive diastase resistant cytoplasmic zymogen granules (Figure: 11.2). Pancreatic non tumoral tissue was atrophic, with fibrosis and lymphocytic cellularity (Figure: 12.1). Note the dilated ducts (Figure: 12.2).

Neoplastic cells were strongly positive to BCL10 (Figure: 13). The findings lead to diagnosis of acinar cell carcinoma, 3 cm in head of pancreas. Intraductal growth, without vascular/perineural invasion. Surgical margins free. 11 lymph nodes without invasion. pT2, pN0. Dilation of secondary pancreatic ducts. Chronic atrophic pancreatitis.

Discussion and Conclusion

ACC is a rare neoplasm of pancreas (1-2%). It is more frequently in adults, 7th decade, and rare in children. ACC is a highly cellular tumor with variable histological features. In a cytological study, it can be confused with other entities, such as, neuroendocrine tumor. In 2012, Stefano La Rosa et all. [3] described the cytological, hystological and inmunophenotypical features of 62 cases and concluded that the histopathology features of this kind of tumor were no statistically significative. The prognosis depends on size (more than 6.5 cm), lymph node invasion and distant metastases. Three more interesting findings were noticed:

- 14 cases were positive for neuroendocrine markers and 12 of it, showed more than 30% positivity for chromogranin and/or synaptophysin. The latter group was reclassified as mixed acinar-neuroendocrine tumor.

- Only 2 of these 62 cases had an intraductal growth pattern, and they had an indolent course, like our case.

- BCL10 immunostaining was strongly diffuse in 85% of ACC studied; besides, Trypsin was positive in 96% of cases. So, using of both markers are recommended to use.

Nowadays, new ACC cases with different histological patterns have been reprted. For example, Chiara Saglietti et all. [4] in July 2019 published a case report of ACC of the pancreas with thyroid like follicular features.

All of the mentioned studies emphasized, as in the present case, that immunoreactivity to COOH-BCL10 supported the final diagnosis. Especially C-terminal portion of the BCL10 protein showed homology with carboxyl ester hydrolase (CEH, enzyme produced by pancreatic acinar cell and also ACC). The antibody BCL10 shows 100% specificity and sensitivity for ACC, with stronger staining than trypsin [5].

Figures

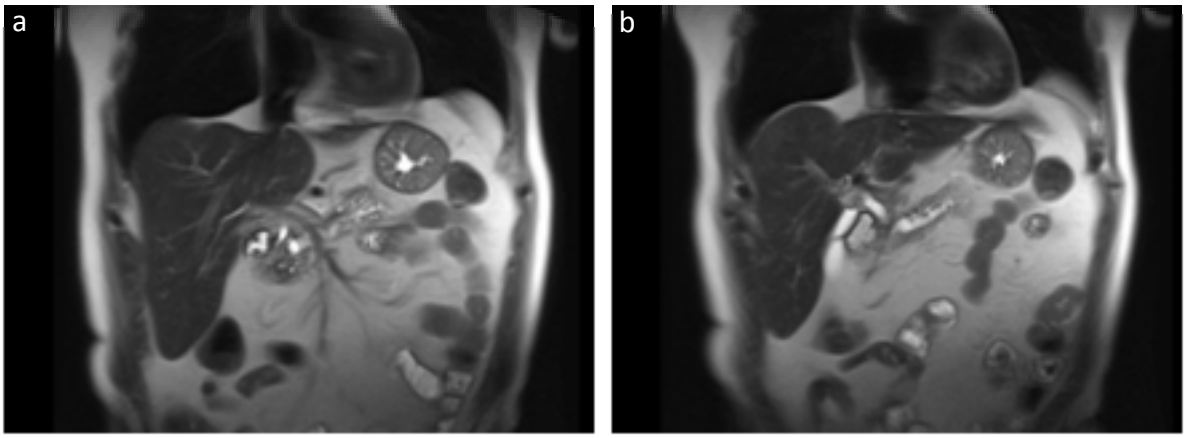

Figure 1: (a,b) RMI imagines. Principal pancreatic duct dilated, with some cysts/dilations in the body and tail of the pancreas.

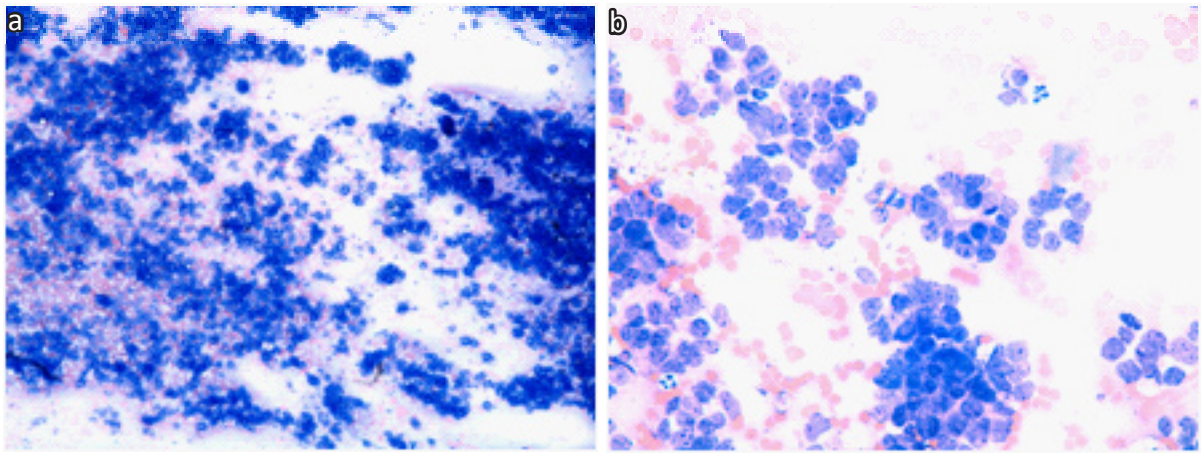

Figure 2: (a)Low magnification GIEMSA semear with highly cellular with tridimensional clusters and modules. (b) At high magnification, pseudorosettoids structures with basal nuclei, one or some nucleoli, and pleomorphism.

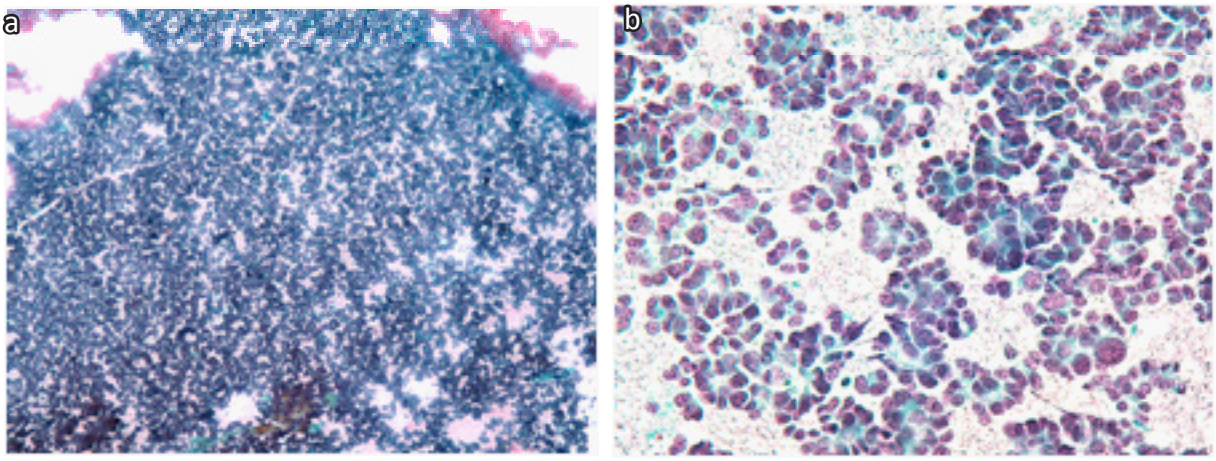

Figure 3: (a,b) Papanicolau histochemistry. Same features than GIEMSA. Note the different size between nucleus.

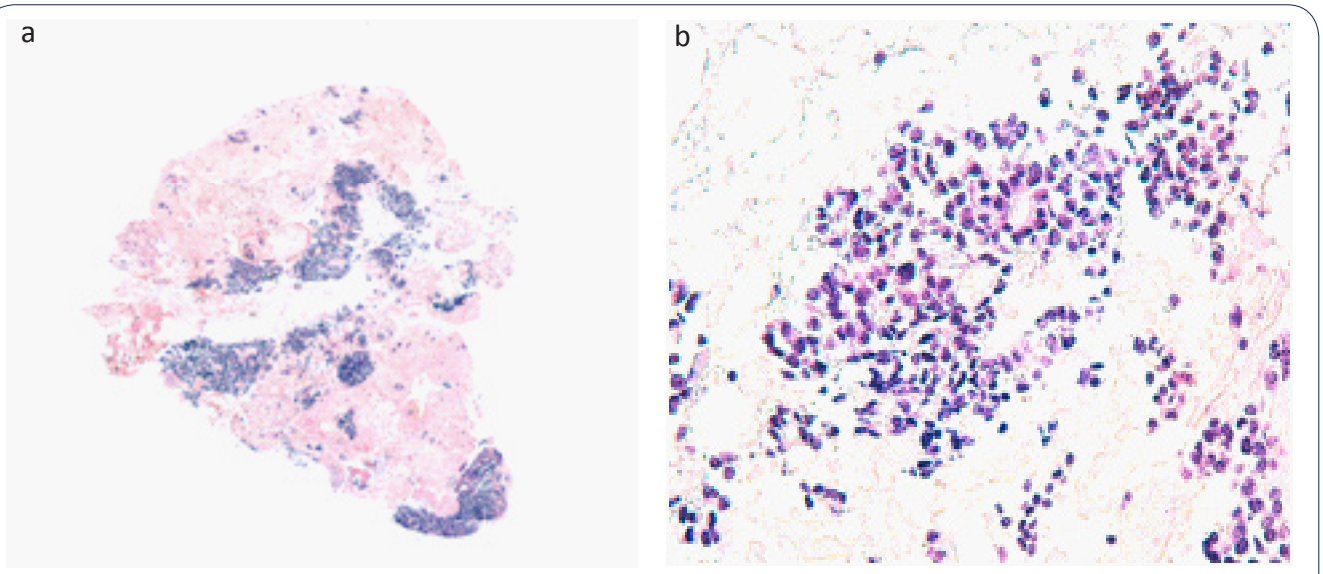

Figure 4: (a) Bloc with fibrinoid background. Hight and bleu cellularity at low power. (b) At high magnification, acini structures compound by atypical which shows nuclei in basal position with scanty apical cytoplasm.

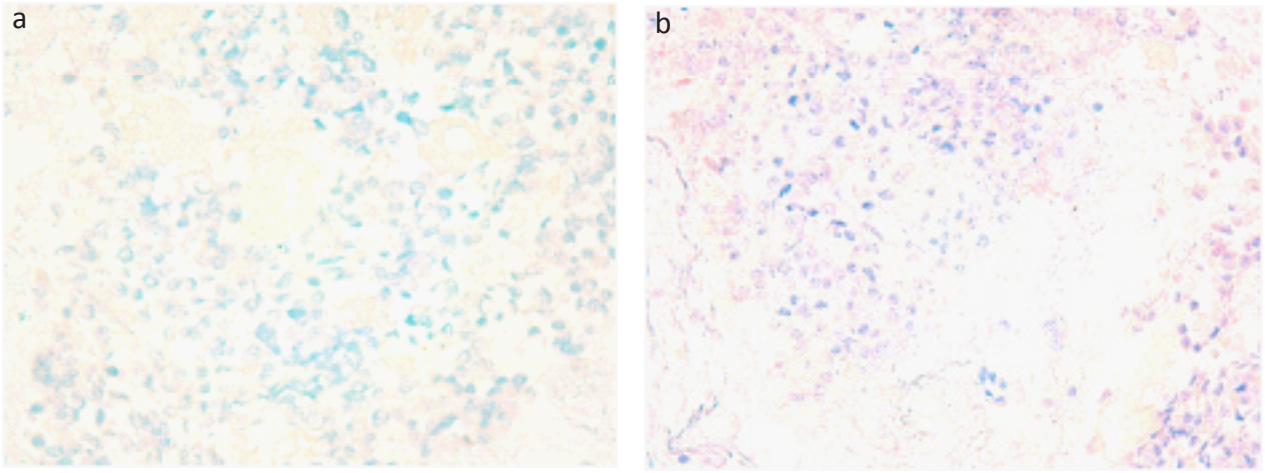

Figure 5: (a) Chromogranin negative. (b) Same negativity view in synaptophysin.

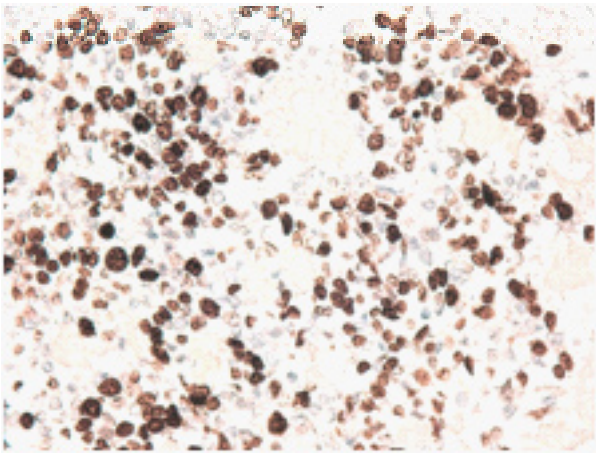

Figure 6: Hight mitotic activity is seen with Ki67.

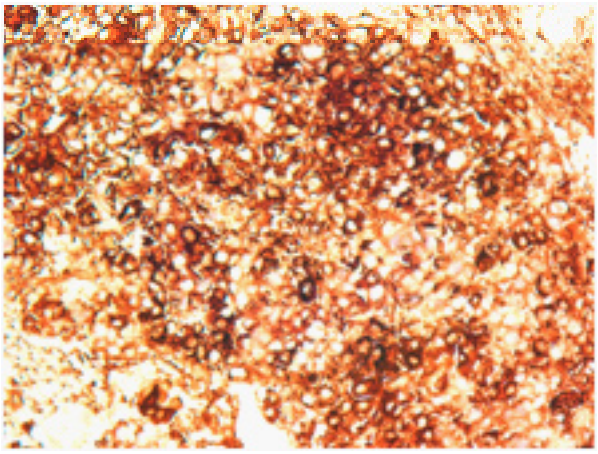

Figure 7: Strong and diffuse positivity for BCL10.

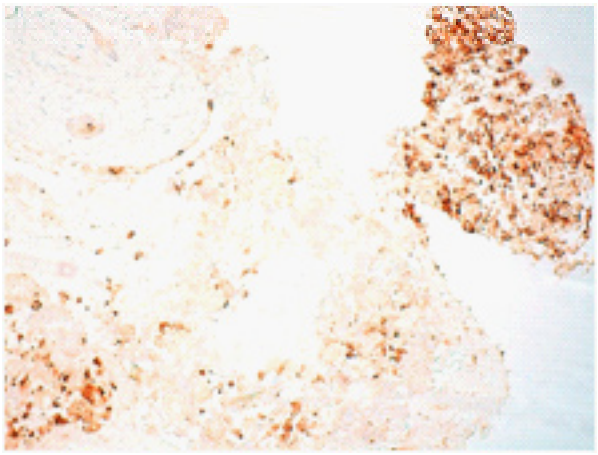

Figure 8: Partial positivity for CD10.

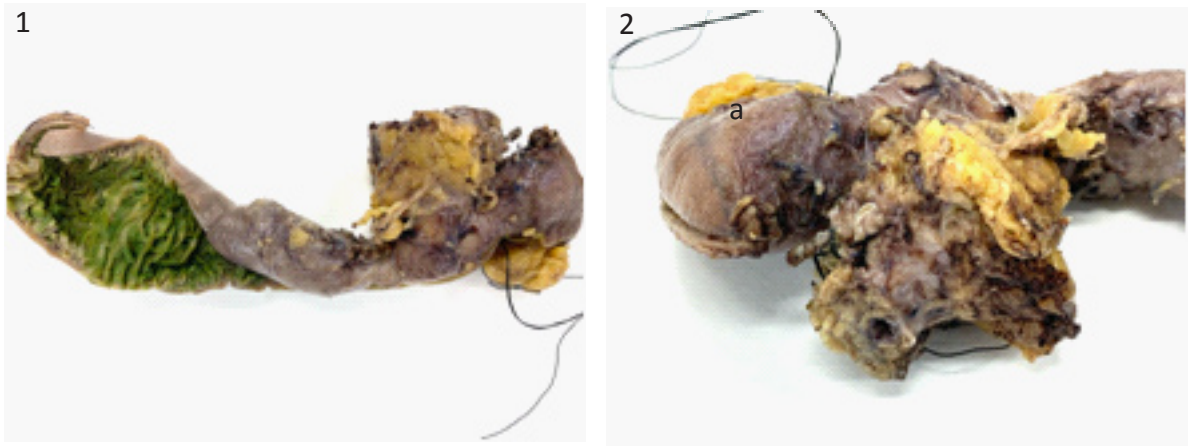

Figure 9: (1) Cephalic duodenopancreatectomy. (2) Note principal pancreatic duct dilated in posterior surgical margin.

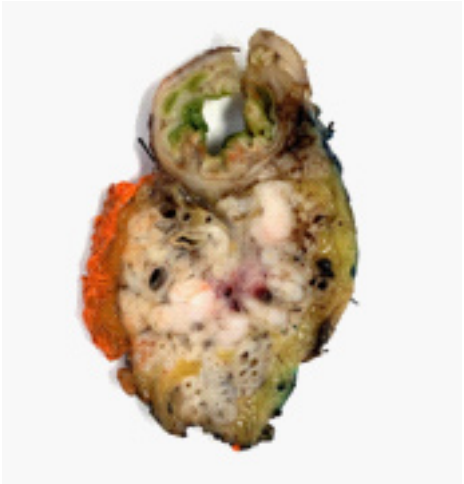

Figure 10: Tumor compound by some white nodules white, 3 cm size. Atrophic pancreatic tissue in relation with secondary pancreatic ducts dilated. This imagine was though cysts by radiologists.

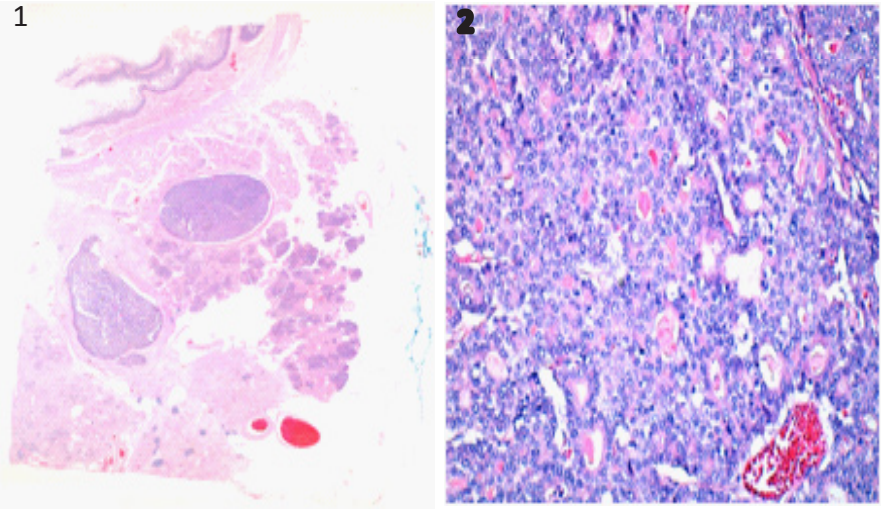

Figure 11: (1) Tumor nodules highly cellulars in magnifying. (2) At high magnification, highly cellular neoplasm compound by acinari structures with atypical cells and eosinophilic secretion to the lumen. This histological features are the same that it shows in cytology.

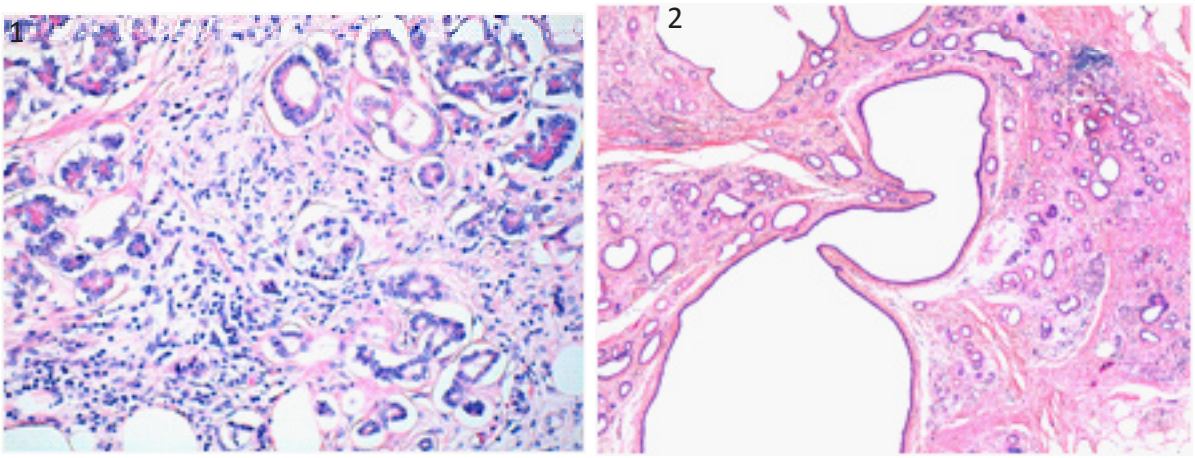

Figure 12: (1) Chronic atrophic pancreatitis. Atrophic pancreatic ducts embebed in fibrotic tissue with lymphocytes. (2) Secondary biliary ducts dilated.

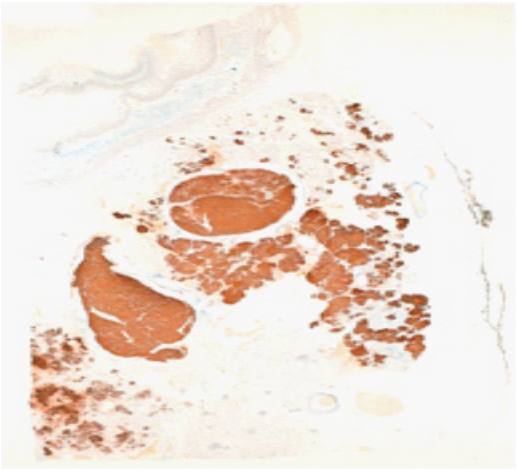

Figure 13: Tumor shows strongly positivity for BCL10. This technique was also positive in pancreatic tissue.

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