**SUPPLEMENTARY MATERIAL**

**Details of inconsistencies between suggested management after SOC and actually observed management :**

In the IBDS group: 5 cases

One false negative case : initial SOC showed no neoplasia, follow-up ERCP 15 months later showed persistent stricture with low grade dysplasia on guided biopsies and cytology ; palliative treatment by stenting was decided with regard to old age *(patient evolution)*

One patient with high grade dysplasia on Spybite™ biopsies, subsequently recommended for resection, underwent palliative stenting due to new onset comorbidities ; *(patient evolution)*

One patient with normal (benign) SOC findings underwent surgery for clinical suspicion of malignancy ; no tumor was found. *(physician’s decision)*

One patient with normal Spybite™ biopsies but suspicious visual impression ; control ERCP+SOC 3 months later was recommended, but surgery was decided and found an early cholangiocarcinoma *(false negative SOC).*

Same case as d) with the same recommendation after SOC, but subsequent EUS-FNA of bile duct thickening provided evidence of neoplasia and led to surgery *(false negative SOC)*

in the PSC group : 2 cases

one patient was operated one month after negative SOC findings for high clinical suspicion of cholangiocarcinoma; carcinoma was confirmed after resection *(false negative SOC)*

another patient underwent hepatectomy for intrahepatic cholangiocarcinoma shortly after negative SOC findings on a common bile duct dominant stricture (SOC did not explore intrahepatic ducts). Not really a false negative because intrahepatic ducts were not supposed to be explored, but green light for OLT was contradicted by subsequent findings.

**Details of outcomes in false negative cases**

In the IBDS group: 5 FN cases

One patient with normal Spybite™ biopsies but suspicious visual impression ; control ERCP+SOC 3 months later was recommended, but surgery was decided and found an early cholangiocarcinoma

Same case as d) with the same recommendation after SOC, but subsequent EUS-FNA of bile duct thickening provided evidence of neoplasia and led to surgery

SOC did not find recurrent carcinoma in a patient previously treated by photodynamic therapy. The patient was treated by stenting alone.

Biopsies were not taken in one patient with duodenal perforation during SOC ; after conservative management, surgical resection 2 months later found cholangiocarcinoma (R0 resection)

In one patient with gallbladder carcinoma propagated to the bile duct, ductal involvement was not confirmed by SOC biopsies, but subsequently demonstrated by surgery (R0 resection)

In the PSC group : 1 case

one patient was operated one month after negative SOC findings for high clinical suspicion of cholangiocarcinoma; carcinoma was confirmed after resection (R0).