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Background

- Primary squamous cell biliary carcinoma (SCBC) with liver metastasis is sporadic
- The exact pathogenesis of the disease is unestablished; however, it's mostly reported to be associated with chronic inflammation of the bile duct, liver cysts related to infection, and congenital cysts of the biliary tract.
- Despite all these known risk factors, many cases of cholangiocarcinoma occur in patients without apparent risk factors.
- We present a biliary carcinoma case initially diagnosed as cholangiocarcinoma and later found to have transformed into SCBC.

Case Presentation

- A 50-year-old woman with no prior medical history initially presented with postprandial epigastric and right upper quadrant pain, early satiety, nausea, and weight loss of 25 pounds over two months.
- A CT and MRI revealed a large heterogeneous area in the inferior right hepatic lobe.
- A mass biopsy showed a necrotic malignant tumor, favoring adenocarcinoma, with cytokeratin 7, cytokeratin 20, pan keratin returning positive, negative TTF-1, and GATA-3; the patient was also found to be germline BRCA mutated.
- PET revealed a large partially necrotic FDG avid mass arising from the gallbladder fossa with an invasion of both lobes of the liver.

- Staging laparoscopy was done; another biopsy was taken, which returned in favor of squamous cell carcinoma, with immunohistochemical stains being positive for CK19, Ber-EP4, and P40, while negative for CK7, CK20, CDX-2, PAX-8, and Mucicarmine.
- ERCP was done to release the obstruction and revealed High-grade biliary stricture 3-4 cm involving proximal common bile duct and common hepatic duct.
- The patient was started on platinum-based chemotherapy due to germline BRCA mutation.

Figures

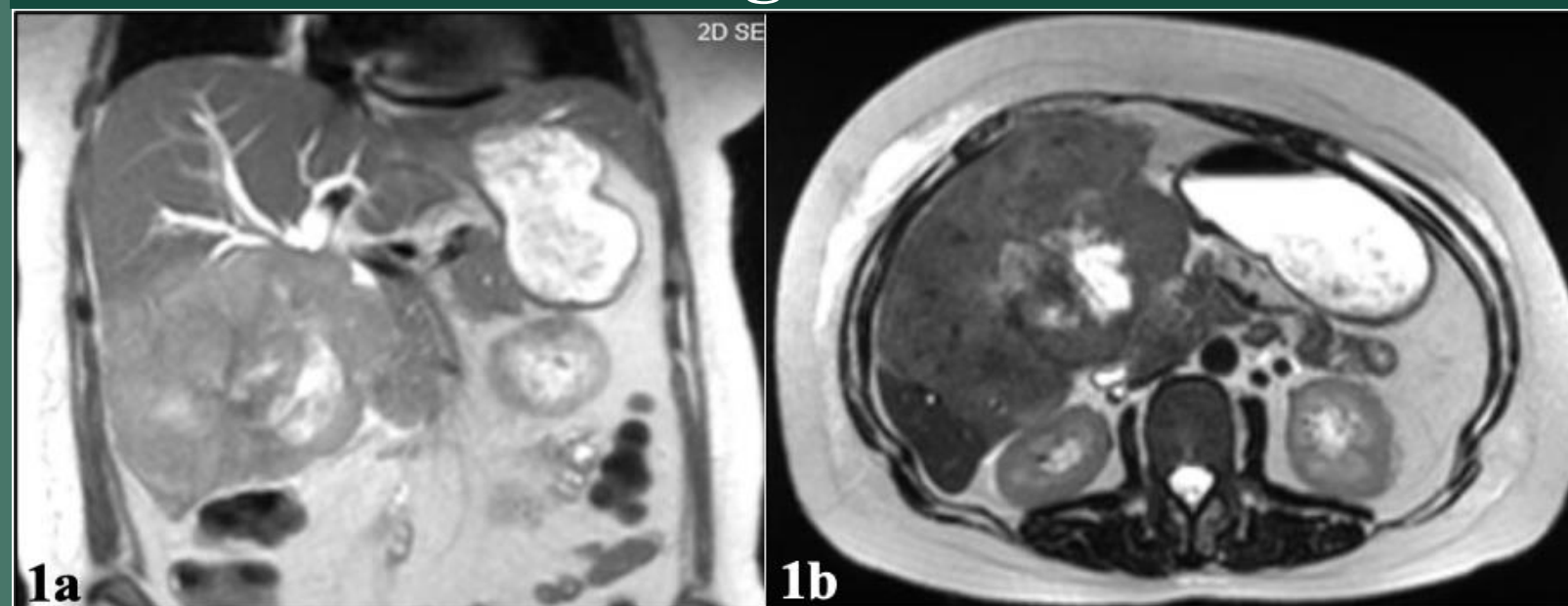


Figure 1a: MRI showing heterogeneous mass with a large necrotic center involving the right and left hepatic lobes, common hepatic duct, and proximal common bile duct as well as the ascending colon. **1b:** MRCP showing Intrahepatic and extrahepatic biliary ductal dilatation.



Figure 2: ERCP revealed High-grade biliary stricture 3-4 cm involving proximal common bile duct and common hepatic duct with significant dilation of intrahepatic ducts.

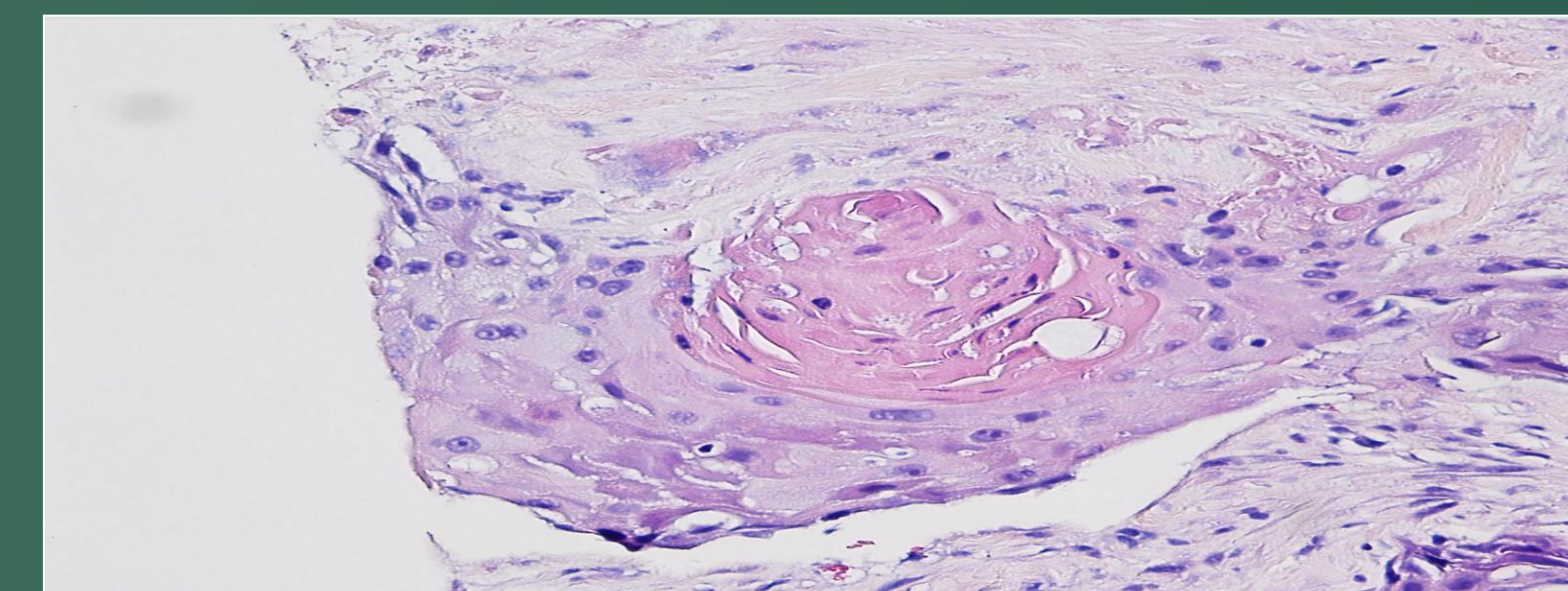


Figure 3: H & E images at 4x, 10x, Squamous cell carcinoma, with focal keratinization.

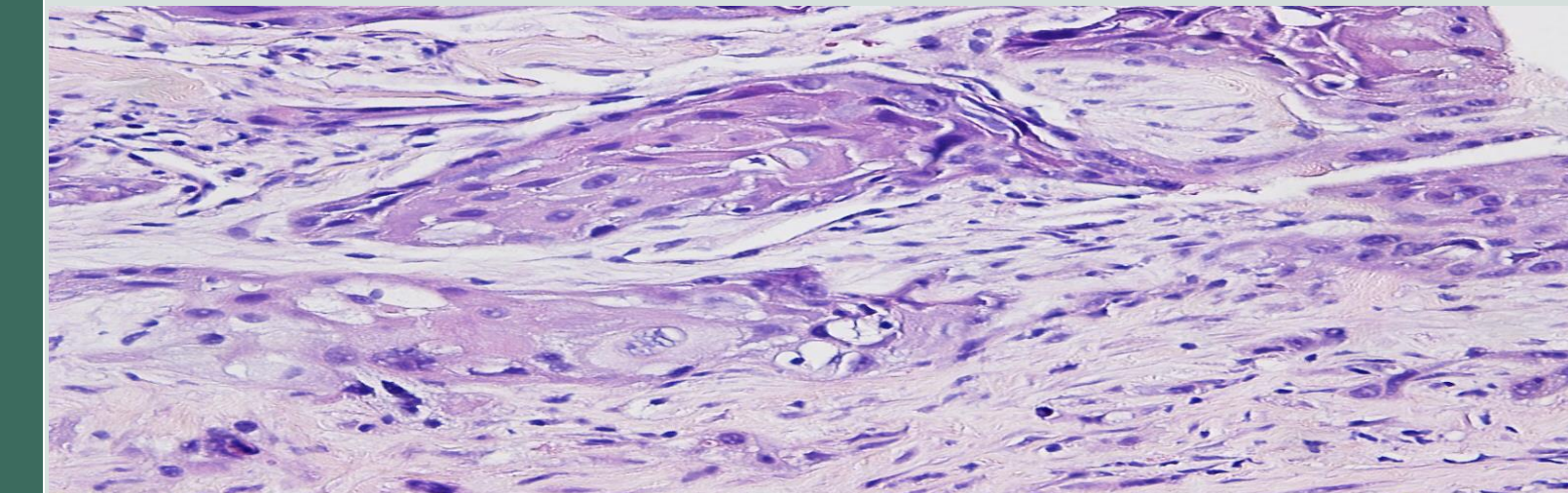


Figure 4: H & E images at 20x, Squamous cell carcinoma, with necrosis. No normal hepatic tissue is present in the biopsy.

Discussion

- Few theories have been proposed to explain the mechanism malignant cells arise. The most widely accepted theory is malignant transformation under chronic insult to biliary cells, leading to metaplasia and, subsequently, malignant transformation.
- Interestingly, this patient's biopsies demonstrated mixed results, highlighted by positive CK-19 indicating biliary duct origin of the malignant cells, in addition to being positive for CK7 & pan keratin indicating squamous epithelial origin. The disparity in these results is unclear
- Theoretically, the patient may have coexisting adenocarcinoma and SCC.

- Squamous metaplasia of adenocarcinoma cells has significant potential to differentiate into various cell types, with the possibility of primary SCBC developing from adenocarcinoma
- To our knowledge, there is only one similar case reported in the literature on the right hepatic duct Primary Intrahepatic Squamous Cell Carcinoma with Histological Collision of Adenocarcinoma and Squamous Cell Carcinoma.
- In terms of treatment, no standard protocol has yet been established. Available literature has demonstrated that radical surgery provided a longer mean duration of survival in comparison to partial resection, drainage, chemotherapy, radiation, or palliative treatment.
- Our case is the first in the literature to describe an SCBC on the proximal common bile duct extending to the proximal common hepatic duct with liver metastasis along with Histological Collision of Adenocarcinoma and SCC.

CONCLUSIONS

- Primary SSC remains an unexplored aggressive malignancy that carries an overall poor prognosis.
- Diagnosis can be challenging and requires high clinical suspicion due to the scarcity of specific laboratory workups. Pathological diagnosis remains the mainstay standard; however, it also carries its challenges.
- Treatment is usually case-oriented, and standard protocols have yet to be established.