

SISTER MARY JOSEPH'S NODULE: FIRST SIGN OF CHOLANGIOCARCINOMA  
RECURRENCE

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**ABSTRACT**

*A sign manifesting an advanced abdominal cancer is the periumbilical metastases, also known as the Sister Mary Joseph's nodule (SJN). As much as gastric, colorectal and ovarian malignancy are the most common cause, pancreatoco-biliary advanced cancers were also reported to be responsible for SJN. We report the case of a 61-year-old male diagnosed and operated for a Bismuth Corlette type II hilar cholangiocarcinoma. 11 months after the operation the patient presented with a painless periumbilical tumor. A peritoneal biopsy and excision of the umbilical nodule was performed. The pathology result confirmed peritoneal and umbilical metastases from cholangiocarcinoma. PubMed research was performed revealing eight reported cases of SJN as a sign of cholangiocarcinoma. To our knowledge this is the first case of recurrent cholangiocarcinoma presenting as a SMJN to be diagnosed clinically at a routine checkup.*

**KEYWORDS:** *Sister Mary Joseph's nodule, cholangiocarcinoma, periumbilical metastases*

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**INTRODUCTION**

A sign manifesting an advanced abdominal cancer is the periumbilical metastases, also known as the Sister Joseph's nodule (SJN). It was so named by Sir Hamilton Bailey in 1949 in his book – "Physical Signs in Clinical Surgery" after Sister Mary Joseph superintendent of Dr. William Mayo at St. Mary's Hospital in Rochester Minnesota USA, who is believed to be the first to notice the

connection between periumbilical nodules and advanced intraabdominal cancers. As much as gastric, colorectal and ovarian malignancy are the most common cause, pancreatoco-biliary advanced cancers were also reported to be responsible for SJN. [1]

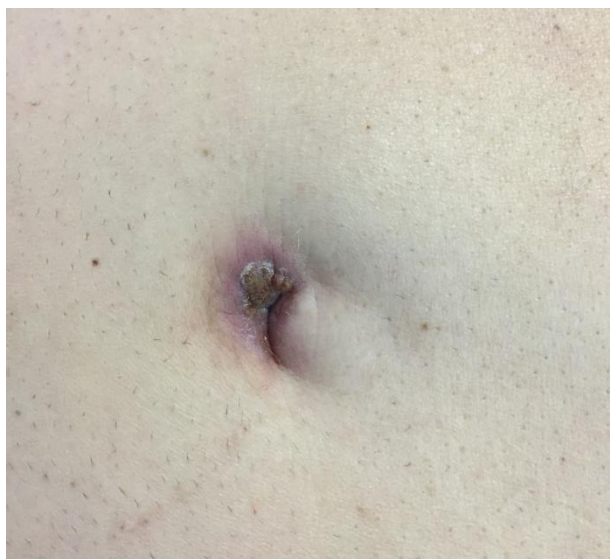
Cholangiocarcinoma accounts for about 3% of all gastrointestinal cancers. We report the first case described in the literature, to our knowledge, where the SJN was the first sign of

the recurrence after an initially operable Klatskin II type cholangiocarcinoma.

## CASE PRESENTATION

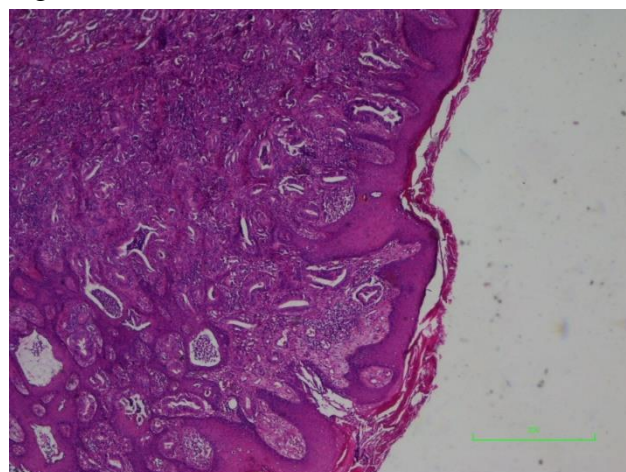
A 61-year-old male patient presented himself with diffuse abdominal pain and jaundice. The medical lab report showed elevated bilirubin level (direct bilirubin- 7.39 UM, total bilirubin- 9.10 UM) and elevated serum markers (CEA 2.92ng/mL, CA 19-9 114.11U/mL). He had a history of hypertension, hepatic steatosis and type 2 diabetes. An MRI followed and a hilar cholangiocarcinoma Bismuth Corlette type II was diagnosed. He was operated and a common bile duct resection with a Roux en Y hepaticojejunostomy was performed. The pathology result certified the diagnosis: well-differentiated biliary adenocarcinoma, with profound invasion in the celluloadipose surrounding tissue and perineural invasion, pT2N1 cM0- stage IIIb. An uneventful postoperative course followed and the patient was discharged on the 8th postoperative day. Following this, he was referred for adjuvant chemotherapy and 6 cycles of GEMOX (gemcitabine 1000 mg/m<sup>2</sup> day1, oxaliplatin 100mg/m<sup>2</sup> day2 every 2 weeks) were administered, very well tolerated by the patient (only grade 2 anemia and thrombocytopenia were reported as side effects).

Clinical exam and abdominal CT scan were performed every 3 months as part of the follow-up plan. 11 months after the operation the patient noted a painless periumbilical tumor (Figure 1).

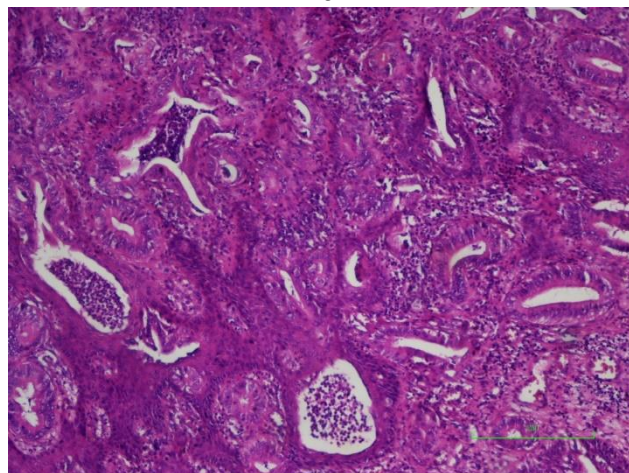


**Figure 1 – Sister Mary Joseph' nodule**

A complete CT scan (chest, abdomen and pelvis) revealed peritoneal masses and raised the suspicion of peritoneal carcinomatosis. A peritoneal biopsy and excision of the umbilical nodule were performed. The postoperative course was uneventful and the patient was discharged on the second postoperative day. The pathology result confirmed peritoneal and umbilical metastases from cholangiocarcinoma (Figures 2,3,4 and 5).



**Figure 2 – Skin fragment with dermic adenocarcinoma (4X objective)**



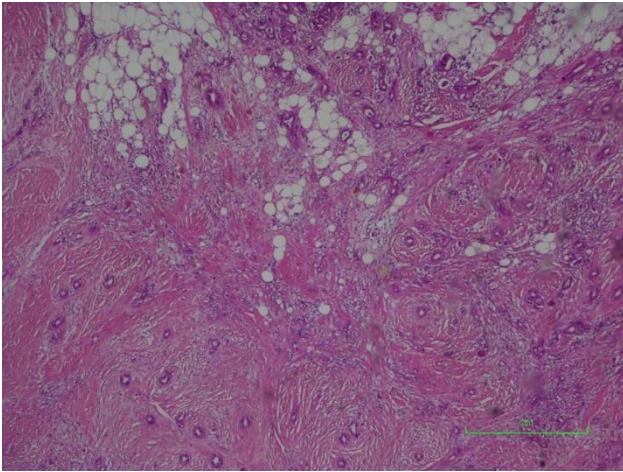
**Figure 3 – Skin adenocarcinoma with tubular growth (20x objective)**

The patient refused chemotherapy because of personal reasons at that point and died two months later because of progressive disease (hepatic and pulmonary metastases).

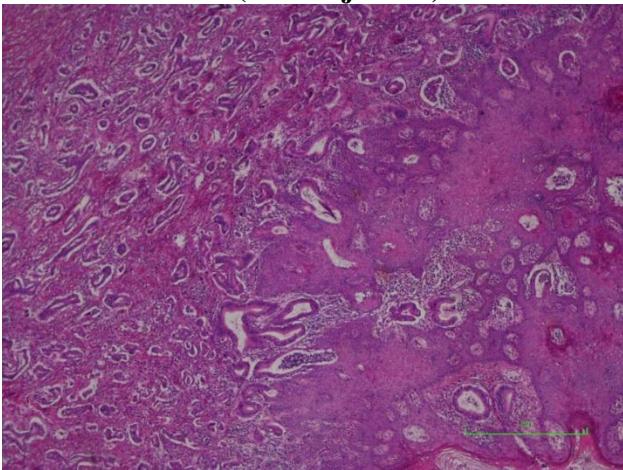
## DISCUSSION

Sister Mary Joseph served between 1890 to 1915 as he first assistant to dr. William Mayo. While preparing patients with gastric cancer for surgery, she observed a firm mass at the

umbilicus in patients who invariably had a poor outcome and had very short life expectancy. It was afterwards reported by dr. Mayo as a “pant-button” umbilicus in a lecture in 1928 at the Cincinnati Academy of Medicine [1,2].



**Figure 4 – Hypodermic tissue with invasive adenocarcinoma (10X objective)**



**Figure 6 – Invasive adenocarcinoma in dermic tissue with tubular pattern (10X objective)**

While presenting as a first clinical sign of the intra-abdominal malignancy it is always a mark of a very poor prognosis. SJN represents 83% of all malignant umbilical tumors, far more often than primary malignant tumors of the umbilicus. Adenocarcinoma represents the most common histological type (75%) followed by squamous cell carcinoma, undifferentiated tumors and sarcoma. The common sites for the primary tumor are mostly gastrointestinal – stomach (25%), colorectal (10%), pancreas (7%), but also gynecological tumors-ovarian or endometrial carcinoma (28%). There were also reported cases of metastases in the umbilical from lung, kidney, prostate, penis or breast cancer. Melanoma and peritoneal mesothelioma

may count for differential diagnosis of the cutaneous periumbilical nodules, but these diseases can also represent primary tumors, along with basal cell carcinomas, and myosarcomas [2-6]. The thoracic cavity can count for 3% of the primary tumors, but the primary site of the malignant site may not be found in about 30% of cases [7].

Regarding the mechanism of these cutaneous metastases, numerous hypotheses were proposed. They include direct transperitoneal spread via lymphatics passing along obliterated umbilical vein, hematogenous spread or by a remnant of the umbilical duct. Direct implantation via laparoscopy was also reported. Still, in most cases SJN is associated with multiple peritoneal metastases, which is an argument for the first theory [8].

Skin metastases from cholangiocarcinoma are extremely rare, the English literature reporting only 31 cases, in 22 articles cited from 1978 until 2018 [9,10]. About two thirds of the cases were associated with abdominal wall metastases resulting from previous percutaneous biliary drainage. The metastasis was rarely the primary presenting sign of cholangiocarcinoma [11].

PubMed research was performed revealing five reported cases of SJN as a sign of cholangiocarcinoma. To our knowledge, this is the first case of recurrent cholangiocarcinoma presenting as a SMJN to be diagnosed clinically at a routine checkup. From a total of around 403 cases of SJN cases published to date, 9 (including ours) were from cholangiocarcinoma as the site of primary tumor, which represents 2,2% of all reported cases. One case was reported as the first sign of recurrence of cholangiocarcinoma after liver transplantation [12], and another as the first case of recurrent cholangiocarcinoma diagnosed on PET-CT findings [13]. The actual incidence of umbilical metastases is difficult to assess because of underreporting [14].

## CONCLUSION

The presence of SMJN as a first clinical sign of the intra-abdominal malignancy is always a mark of a very poor prognosis, most of the time, associated with inoperability. Up to date we found in the literature 9 cases of SMJN associated with cholangiocarcinoma of which

our case was the first one clinically diagnosed as disease recurrence at routine checkup. However, the actual incidence of umbilical metastases is difficult to assess because of underreporting.

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