

Clinical Oncology – Hosted by the CT Commission on Cancer

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“Surviving to Thriving” Nutrition Education in Breast Cancer Patients

Anna Sarkisova DO, Trevor Roush MD, Janette Lamb RD, Susan Boolbol MD, Carinne Anderson MD
Nuvance Health at Danbury Hospital, Danbury CT

Introduction: By 2032, it is estimated that there will be 22.5 million breast cancer survivors in America. Increased survival has placed a greater emphasis on improving survivorship outcomes. National guidelines focus on decreasing toxicity from treatment and optimizing risk reduction strategies. Guidelines suggest clinicians center patient education on modifiable risk factors such as diet, nutrition, management of chronic disease and physical activity. Access to resources is a critical facet of breast cancer survivorship. Here we report our 3-year experience with an online course for breast cancer survivors. The goal was to create an encouraging platform educating patients on a healthy diet and lifestyle for breast cancer survivorship.

Method(s): Breast Cancer Survivorship workshops were hosted quarterly by a Registered Dietitian with oncologic training. These two-hour, virtual workshops focused on diet, nutrition, and exercise in cancer prevention, development, and recurrence. A Q&A session within the workshop provided a platform to address misconceptions about nutrition and cancer. Eligible participants completed active treatment of breast cancer with curative intent within the organization’s seven-hospital system. Enrollment was free and optional for all participants. Following the workshop, the effectiveness of the course was assessed with a four-point Likert scale.

Results 116 women participated in the workshops. Average workshop attendance grew to consistently an average of 16 participants per session. Post workshop surveys demonstrated significant improvements in participant’s knowledge, as well as likelihood of behavioral modification (Figure 1). In the surveys participants rated their improvement in understanding on a scale from 1 (no improvement) to 4 (a great deal of improvement). Over 70% of respondents gave the highest rating in all categories. Additionally, 93% of participants gave the highest rating for likelihood of making a change to their diet, and 83% for likelihood of making changes to physical activity.

Conclusion(s): Virtual nutrition workshops are a successful tool for survivorship education. Our attendance demonstrates significant patient interest in nutritional education, with post-workshop surveys showing excellent participant feedback. This program can easily be reproduced at other centers and is a low-cost method of improving patient access to nutritional counseling. Our next steps will include expansion of program to serve more patients, with long-term follow-up.

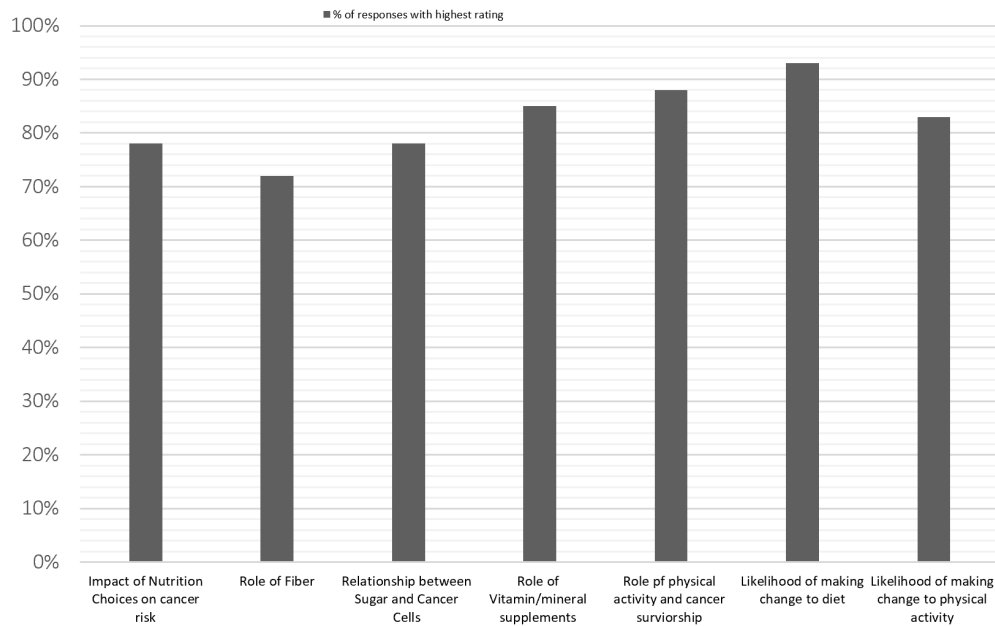


Figure 1: Survey Responses to a 4-point Likert Scale

Rare Case presentation: En bloc resection of High grade retroperitoneal dedifferentiated liposarcoma

Thomas Tritt¹ MS MD, Shubham Kanake¹ MD, Antonio I. Picon¹ MD FACS

Stamford Hospital, Department of Surgical Oncology, 1 Hospital Plaza, Stamford, CT 06902

Introduction: There will be an estimated greater 13,000 soft tissue sarcomas (STS) diagnosed in the US in 2023¹. Liposarcoma is the most prevalent type, accounting for 20% of all STS in adults and 50% of all retroperitoneal sarcomas^{2,3}. As only approximately 10% of patients will have distant metastasis at presentation, local control and recurrence are key aspects for management of retroperitoneal liposarcoma⁴. R0 or R1 resection of retroperitoneal sarcomas is associated with improved 5 year survival, but the anatomic complexity of the retroperitoneal space makes this challenging⁵. Many patients may require resection of contiguous organs to achieve adequate resection³. Here we describe a case of exploratory laparotomy with successful en bloc resection of the right colon and retroperitoneal sarcoma.

Method(s): Patient was 61 year old female with past medical history of HTN, TIA, with a history of an asymptomatic right sided abdominal mass for past year. On exam patient exhibited a firm immobile mass about 14cm in diameter in the right lower quadrant. CT showed large mass of retroperitoneum of unclear origin and MRI abdomen with/without contrast was obtained showing 13cm x 10 cm x 14 cm heterogenous mixed solid/cystic lesion with enhancing nodular components with 3.6cm segment 6 cystic liver lesion. Lesion was sampled and was negative for malignancy. Patient was taken to operating room for exploratory laparotomy, En Bloc Resection of right colon and retroperitoneal sarcoma was performed. Diet was advanced and patient was discharged on POD 4 after pain was controlled and return of bowel function.

Results: Tumor biology resulted as high grade dedifferentiated liposarcoma T4 N0 M0 with R0 resection, 0/12 lymph nodes involved, 70 mitoses per 10 high power field. Tumor was negative for Pancytokeratin, CK8/18, SOX10, p63, calretinin, MDM2 was present. Case was presented at multi-disciplinary tumor board and felt there was no survival benefit to adjuvant chemotherapy or radiation. She was placed in close surveillance program with visits every 3 months and CT scans every 6 months.

Conclusion(s): Liposarcoma is rare tumor that presents as a later tumor stage due to its asymptomatic nature and requires definitive curative surgical resection. In this case the tumor was resected En bloc with the right colon to obtain an R0 resection and offer adequate local control.

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Role of Circulating Tumor DNA in Early Detection of Breast Cancer Recurrence

Nicole DiTommaso MD, Tian Sheng Ng MD, Nicole Sookhan MD FACS
The Stanley J Dudrick Department of Surgery, Saint Mary's Hospital

Introduction: For years, tumor antigens have been utilized to assess disease recurrence and response to medical therapy such as in prostate, ovarian, hepatic and gastrointestinal cancers. Cancer Antigen 15-3 has previously been used to monitor response to breast cancer treatment however, the sensitivity for the detection of micro-metastasis is limited. In fact, the sensitivity of CA 15-3 in breast cancer patients with macro-metastasis (bone recurrence) has been estimated as low as 75% (Sant et. al). Current NCCN guidelines do not recommend laboratory testing in monitoring for recurrence in the absence of clinical signs and symptoms. Recent data suggests that circulating tumor DNA (ctDNA) detectable in blood plasma can reflect the mutational signatures of the primary tumor and allow for early detection of cancer recurrence. Lipsyc-Scharf et al. found that through serial monitoring of ctDNA semiannually, ctDNA was detected on an average of 11 months prior to clinical manifestations of distant recurrence. We aim to describe the experience in implementing ctDNA in the surveillance of breast cancer patients in a community hospital.

Methods: The authors performed a retrospective chart review of 142 breast cancer patients who had ctDNA testing performed semiannually between June 2022 and June 2023. Six patients had positive ctDNA results. In three of these patients, ctDNA was utilized to assess response to neoadjuvant chemotherapy. The writers report a series of three postoperative patients who had newly positive ctDNA results on surveillance testing and were found to have metastatic recurrence.

Results: In this series, all patients had nodal metastasis on initial breast cancer diagnosis and subsequently underwent a mastectomy with axillary dissection during their index operation. Patient 1 had an ER+, PR+, HER2- tumor and underwent radiation, hormonal therapy and adjuvant chemotherapy. Patient 1 had negative ctDNA six months prior to presenting with right hip pain. CT at that time was concerning for osseous metastasis, repeat ctDNA was positive. Patient 2 had an ER+, PR+, HER2- tumor and underwent radiation and hormonal therapy with Tamoxifen. Patient 2 did not receive adjuvant chemotherapy due to a low risk MammaPrint. Patient 2 was found to have findings concerning ipsilateral nodal recurrence on surveillance imaging, ctDNA was positive. In patient 2, nodal recurrence was consistent with a triple negative tumor. Patient 3 had a triple negative tumor and underwent adjuvant chemotherapy. Patient 3 had follow up ctDNA testing that was positive and was referred for bone scan. Bone scan revealed vertebral osseous metastasis.

Conclusions: Circulating tumor DNA may augment current surveillance management in detecting early breast cancer metastasis. Prior studies have found that ctDNA was positive an average of 11 months prior to clinical signs of metastasis; however, Patient 1 had negative ctDNA testing 4 months prior to clinical symptoms of metastasis. We hope that by continuing to collect ctDNA in our patient population, we can learn more about the function of ctDNA in the surveillance of breast cancer patients.

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Short Term Post-Operative Complications of Pancreatectomy by Approach and Surgical Procedure

Ronald Truong MD MS, Bradley Nolan MSc, Krist Aploks MD, Minha Kim MD, Anna Sarkisova DO MS, Xiang Da Dong MD FACS
Danbury Hospital, Nuvance Health, Danbury, CT

Introduction: Pancreatic surgery has expanded from total pancreaticoduodenectomy to include partial resection and various approaches including open, laparoscopic, and robotic. National trends on minimally invasive approaches, along with trends for short term complications associated with each type of resection, have not yet been studied in a large volume manner. This study looked to evaluate these trends and complications associated with each type of resection with data provided by the ACS NSQIP database.

Methods: Retrospective review of pancreatectomies from 2015 to 2020 listed in the American College of Surgeons National Surgical Quality Improvement Program database were included in the study. Pancreatectomies were dichotomized, using Current Procedural Terminology codes, of having a Whipple procedure (48150, 48153, 48152) or distal pancreatectomy (48140). These procedures were then divided based on surgical approach: open, laparoscopic, or robotic. Baseline demographics, comorbidities, operative characteristics, and complications were examined for each group. Historical trends were analyzed, along with using multivariable logistic regressions to assess the effect of patient characteristics, operation time, and surgical approach on 30-day complications.

Results: A total of 34469 patients who received a Whipple procedure or distal pancreatectomy were included in the study. Mann-Kendall trend tests indicated a moderate increase over the 5 years for robotic Whipple procedures (5-year change=3.01%, $Tau=0.733$, $p=0.06$), while open (5-year change=-2.25%, $Tau=-0.733$, $p=0.06$) and laparoscopic approaches (5-year change=-0.75%, $Tau=-0.733$, $p=0.06$) demonstrated moderate to small decreases. For distal procedures, robotic approaches showed a significantly strong increase (5-year change=7.8%, $Tau=1.00$, $p=0.009$), with moderate decreases from open (5-year change=-2.36%, $Tau=-0.733$, $p=0.06$) and laparoscopic approaches (5-year change=-5.5%, $Tau=-0.733$, $p=0.06$). Logistic regression for smoking leading to increased wound disruption distal pancreatectomy for minimally invasive surgery compared to open demonstrates a OR of 6.241 ($p<0.001$, CI: 2.660-14.668). Distal pancreatectomy also demonstrated an increase frequency of deep incision surgical site infection for patients who were diabetic on insulin OR 2.111 ($p=0.059$, CI: 0.931-4.480). Laparoscopic Whipple Procedure was associated with higher OR 2.037 ($p=0.039$, CI 0.961-3.776). When comparing minimally invasive technique for distal pancreatectomy and Whipple Procedure, open approach was associated with more transfusion requirements intra-operatively and post-operatively.

Conclusion: From 2010-2020, an increase in minimally invasive techniques in pancreas surgery has been demonstrated compared to open approach. Minimally invasive techniques in Whipple Procedure and distal pancreatectomy have less complications overall compared to open approach including transfusion requirements, surgical site infection, pulmonary embolism, and wound disruption.

Clinical Oncology Case Reports – Hosted by the CT Commission on Cancer

Anastomotic Adenocarcinoma in a Nonagenarian with Previous Histologically Rare Medullary Colon Cancer

Katherine Lipinski MD, Suraj Panjwani MD, Nick Druar MD, J. Alexander Palesty MD, Abdulmasih Zarif MD
St. Mary's Hospital, Waterbury, CT

Introduction: Medullary colon carcinoma is a rare histologic subtype of microsatellite unstable colon cancers that has an estimated incidence of 0.03%. It is histologically described as poorly differentiated or undifferentiated. Medullary carcinoma is more commonly diagnosed in late middle-aged women, usually develops in the right colon, and has an overall good prognosis in comparison to other types of colorectal adenocarcinoma. Here, we describe the case of a 94-year-old female who had medullary colon cancer that was surgically resected and developed adenocarcinoma at the prior anastomosis site, which has not been previously described in the literature.

Clinical Case: A 94-year-old Caucasian woman presented to our institution with several weeks of fatigue, anemia, and occult blood in her stool. The patient has a past medical history significant for high grade invasive cecal cancer diagnosed at the age of 84 for which she underwent neoadjuvant chemotherapy. Two years later, she developed progression of her disease resulting in obstruction and underwent right hemicolectomy. Pathology at that time revealed medullary carcinoma with 2 regional necrotic lymph nodes and negative surgical margins (Figure I). After an 8-year remission period, she presented to our hospital with signs and symptoms concerning for recurrent colonic malignancy. CT imaging obtained showed mild colonic wall thickening adjacent to the ileocolonic anastomosis. She subsequently underwent a colonoscopy as part of her work up that revealed a mass at the anastomotic site. After ruling out metastatic disease, the patient underwent resection and revision of the previous anastomosis (Figure II). Final pathology revealed a pT3N0 invasive moderately differentiated adenocarcinoma that was BRAF + and had loss of MLH1/PMS2 (Figure III).

Conclusion: Medullary colon cancer is a rare and distinct subtype of microsatellite unstable colon carcinoma that requires specific immunohistochemical staining for accurate diagnosis. This case report is the first to demonstrate the possibility of a different histologic type manifesting as recurrence at the prior anastomosis of medullary carcinoma. As prior literature has shown medullary colon cancer to have a low recurrence, clinicians should be aware of the development of different subtypes of cancer. Additionally, it also depicts the feasibility of surgical re-resection in a 90+ year old patient.

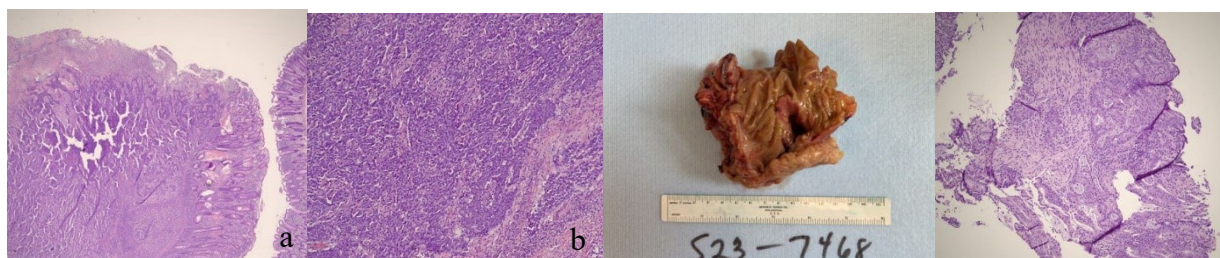


Figure I. Neoplasm of the cecum. Histology revealed medullary carcinoma (hematoxylin and eosin staining; 4x (a) and 40x (b) magnification).

Figure II. Gross pathology of anastomosis site involving terminal ileum and transverse colon with associated mass.

Figure III. Anastomosis site. Histology revealed Grade 2 adenocarcinoma (hematoxylin and eosin staining; 4x magnification).

Case Report: Submucosal gastric mass found to be Plexiform Fibromyxoma, a rare mesenchymal gastric tumor

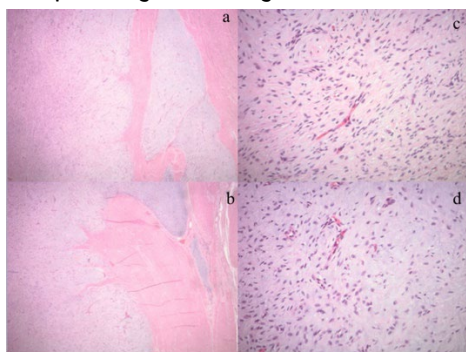
Ryan Pettit MD, Daniel McGrath MD, Antonio Picon MD FACS, Eldiga Volpicelli MD FCAP FAAD
Stamford Hospital/Columbia University Vagelos College of Physicians and Surgeons

Introduction: Plexiform fibromyxoma (PF) is a rare, benign mesenchymal tumor that demonstrates lymphovascular invasion and has not been reported to demonstrate malignant transformation or metastasis. PF has an incidence of 1.7% over the past 20 years, and its incidence is increasing as its histologic and molecular properties are further delineated. PF has histologic similarities to malignant mesenchymal tumors, in particular gastrointestinal stromal tumor (GIST), smooth muscle, and nerve sheath tumors as well as molecular similarities to gastroblastoma and malignant epithelioid tumors. Given the similarities among these tumors, determining these tumor characteristics is essential as treatment modalities change by tumor type. In this report, we present a Patient presenting with a mass in the gastric found to be PF based on histopathological immunostaining.

Method(s): A 38 year old woman with history of asthma, ovarian cysts, presented with abdominal pain with associated nausea and vomiting for multiple months was found to have a 4cm x 5cm submucosal mass within gastric antrum on computed tomography (CT), causing partial gastric outlet obstruction. An upper endoscopy was performed showing a roughly 3cm, smooth submucosal mass within antrum of stomach. Biopsies were taken.

Results: After careful discussion with the Patient, the decision was made to resect the mass. The Patient was taken to the operating room where a laparoscopic robot-assisted distal gastrectomy with Billroth II reconstruction was performed. The Patient recovered well after surgery and was discharged on post operative day four. Pathology found the tumor to exhibit plexiform growth and be composed of bland spindle cells to ovoid cells in a predominantly myxoid stroma with prominent small vessels. A panel of immunostains was performed revealing the tumor cells to be negative for DOG-1 and exhibit non-specific weak staining for c-KIT., hence excluding GIST. S100 and Sox-10 were also negative, excluding a nerve sheath tumor. Desmin was only focally positive in keeping with a fibroblastic proliferation and excluding a smooth muscle tumor. Overall, the morphology and immunophenotype are in keeping with plexiform fibromyxoma, a rare and benign gastric mesenchymal tumor.

Conclusions: The differential diagnosis of a submucosal gastric mass is broad, including lymphoma, GIST, nerve sheath tumor, smooth muscle tumors, and ectopic tissue. This Patient was found to have PF, making surgical excision the treatment of choice without need for targeted molecular alteration therapy, as would be necessary for GIST. PF is a rare mesenchymal tumor of the GI tract that is increasing in incidence as its histologic and molecular properties are better-delineated. In particular, PF and GIST have multiple similarities, underscoring the importance to delineate histologic and molecular characteristics of submucosal gastric masses as their treatment modalities and prognoses differ. Specifically, histological immunoassays targeted at DOG-1 and c-KIT, as well as S100, Sox-10, and desmin coupled with multidisciplinary management between surgical oncologists, oncologists, and pathologists to diagnose submucosal gastric masses have high utility.



Plexiform fibromyxoma
a and b, 25x: tumor exhibits plexiform growth
c and d, 200x: bland spindle to ovoid cells in a myxoid stroma with prominent small vessels.