A rare case of metastatic adenocarcinoma with signet-ring cells of unknown primary diagnosed on a myocardial biopsy
Archana V. Patel MD, David Mastrianni MD, Catherine Bartholomew, MD
Albany Medical College and Center, Division of Gastroenterology, Albany, New York

Background
* Despite the increasing array of sophisticated diagnostic tools available to establish the diagnosis of human neoplasia, oncologists have struggled to understand a subset of patients with metastatic cancer in whom detailed investigations fail to identify a primary anatomic site(1).

* Carcinoma of unknown primary is defined as biopsy-proven malignancy for which the anatomic origin remains unidentified after history and physical examination, laboratory studies, chest x-ray, T of abdomen and pelvis, mammography in women, and measurement of prostate specific antigen in men(1).

* Adenocarcinoma is one of the four most commonly encountered pathologic subtypes of carcinoma of unknown primary.

* For many patients apparent uncertainties surrounding the diagnosis of carcinoma of unknown primary may result in significant psychological distress and increased difficulty in accepting treatment options.

* We present a patient who was diagnosed with metastatic adenocarcinoma with signet-ring cells of unknown primary on a myocardial biopsy.

Case Presentation
In 1996, a healthy 38 year old man with a family history of colon cancer presented with dysphagia. In early 1997, after esophagram and manometry showed achalasia balloon dilation was done which was complicated by severe chest pain. Two months later night sweats, epigastric pain, cough and lower extremity edema developed. A CT scan revealed pleural and pericardial effusions, hepatomegaly, and ascites. CBC, CMP, ESR, CRP, PSA, and CEA were normal. Viral myocarditis with CHF was suspected. Cardiac catheterization revealed mildly reduced LV function and myocardial biopsy shockingly demonstrated signet ring cells strongly positive for carcinoembryonic antigen and focally positive for basic mucin, consistent with metastatic adenocarcinoma of probable GI primary. Colonoscopy and EGD with fine needle aspiration of GE junction and stomach were negative; however the procedure was complicated by pulmonary edema and transient respiratory failure. To exclude pathology mix-up, tumor DNA and patient DNA were compared and found to be identical. The patient declined chemotherapy.

In 1998, peritoneal fluid obtained during laparoscopic umbilical hernia repair was also positive for poorly differentiated adenocarcinoma. Patient has been followed regularly with serial PET scans. In 2001, MRI of the abdomen and a PET scan were negative for malignancy. In 2006, repeat EGD with biopsies were negative for malignancy. EUS showed a normal esophagus, stomach, duodenum, and pancreas. In 2007, CT scan was negative and a colonoscopy revealed a tubular adenoma. He eats small frequent meals. He has been treated for pseudo-achalasia and has not had any clinical evidence of malignancy and continues to work full-time.

Discussion and Conclusion
* Carcinoma of unknown primary accounts for about 2 to 5% of all cancers(1).

* The median survival for patients with adenocarcinoma of unknown primary is 9 months(1).

* Chemotherapy regimen is based on the histologic type of cancer.

* Immunohistochemistry markers of unknown primary cancers are provided as a resource to assist in localizing a primary but are not uniformly specific or sensitive. Communication with the pathologist is essential to workup(3).

* One hypothesis is that a clinically detectable primary cancer never developed due to the development of specific changes that supported metastatic spread but not local growth(2).

* Another speculation is that the primary tumor might have remained below the limits of clinical or radiologic detection or that it spontaneously regressed(2).

* A third hypothesis is that the spread of cells was caused by the dilation and that these cells did not have true malignant potential.

* Our patient is alive after 15 years without evidence of disease.

* This is a rare and fortunate case where even though he had a poor likelihood of survival at the time of initial diagnosis of metastatic poorly differentiated adenocarcinoma with signet-ring cells of unknown primary that was made on a myocardial biopsy, our patient is doing well for fifteen years without any treatment.

References
