

My Lynch Syndrome Survivor's Story – Duke “C” Colon Cancer While Pregnant

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1. Abstract

Lynch Syndrome is a familial disease, caused by a germline pathogenic variant in the mismatch repair genes: EPCAM, MLH1, MSH2, MSH6, and PMS2. Lynch Syndrome poses a lifetime-risk for related cancers such as colon, endometrial, ovarian and gastric, due to a DNA sequencing error in codon region MSH2. I (Savard, present author) inherited exon 15, variant c.2633_2634delAG, interpreted as pathogenic. Chances of inheriting Lynch from a parent is 50%. In 1981, my son was just born. I was diagnosed with colon cancer. Our small-town doctors engaged, and my parents drove 1250 miles to help care for us. In 2021, I have retired from a professional career in biology and wonder; did my son contribute to my long life? Did my transition from female to male help avert a cancer (i.e., removal of breast tissue, ovaries and uterus)? Can Lynch Syndrome be averted or cured? This narrative is my story.

I (Savard, present author) was diagnosed with colon cancer in 1981, two-and-a-half months after the birth of my son. It was April 1979 when I first had symptoms. I was on my way through Minnesota heading towards Windsor when I felt jabbing pains in my left side. It was like a narrow knife twisting and turning inside. This pain persisted through time.

In the spring 1980, while working in the wilderness as a Forest Technologist, I passed blood in my stool. Upon returning home that April I contacted my primary care giver. He was away on vacation, and I was referred to his stand-in. I informed him about the pain in my abdomen, the blood in my stool, and about our family history of colon cancer. He ordered a navel laparoscopy to check “the reproductive system”. Following his referral to a Physician, M.D., his notes read (Personal Communication; April

17/80): “This 21 year old nullipara was referred by M.D. colleague for laparoscopic examination because of abdominal pain. Savard (Author) developed slightly campy, transient, but progressively worst troublesome pains in the lower abdomen over the past year. It seems to be worse with sitting. It does not seem to be associated with flatus or alteration of bowel or bladder function (...) had a GI series which was said to be negative (...) does complain of some heartburn but no nausea or vomiting. The bowel movements are normal and there is no history of mucus or soybalous stools. The menses have been erratic (...) had a period of amenorrhea lasting nine months following concussion (bike accident 1978) but has resumed... regular periods over the past four to five months (...). No history of pelvic inflammation (...). On examination (...) is a pleasant, alert. No abdominal masses or tenderness, no scars or hernia noted. On vaginal examination there is no abnormal discharge (...). There is tenderness and some fullness in the right adnexa but no definite mass. The left adnexa is not tender. The cul-de-sac is clear. Rectal examination is negative. The history is suggestive of a functional bowel disorder but (Author) has some tenderness and fullness in the right adnexa which is not readily explained (has) relative infertility according to the history and I wonder whether (...) may have chronic PID. I would agree that laparoscopic examination might (Author) add some light on this (...) will also have (...) blood checked including the sed rate and a test for tubal patency using dilute methylene blue”.

Following the aforementioned tests, nothing was found (April 18, 1980): “(...) Normal pelvic organs, normal looking appendix lying over the distal ileum, cecum appeared normal. The liver edge was noted to be smooth, slightly rounded and gallbladder bluish and

moderately distended with bile (...) smallbowel (...) unremarkable. Both tubes were patent (...). The lab tests showed hemoglobin at 11.3 grams (low) with hematocrit 35% (low), sedimentation rate 23 (normal) and white blood count 7,100 (normal). Mid-June 1980, I was pregnant.

Although the pregnancy was normal, I did not gain weight (uterine-content weight replacing any lost body weight), and the pain in my right-side continued throughout the term. The delivery date was to be Friday the 13th, my superstitious physician induced labour the 12th of March 1981. End-of-term, I was slightly jaundiced and had lost about 10 lbs. My post-partum hemoglobin was 12.9 grams.

Early April 1981, I reported to a physician, stand-in for my physician, with severe cramping on my right side. He noted that these cramps were "post-partum cramps", and prescribed pain medication. Strange I thought, he had my medical history file in hand (as noted above).

Late May, 1981, still breast-feeding my two-month old son, I reported to my physician "feeling poorly with chills, weakness, loose dark stools and was found to be pale and a tender mass was noted in the right mid and upper abdomen (I showed my physician this lump, thinking it was the head of my son's twin that had died in me). Hemoglobin was found to be 9.8 grams with a white count of 7,100 and the zeta sedimentation rate 62%. A stool specimen was positive for blood, but two were negative. Midstream urine culture was negative". I was sent home.

June 3rd, I reported experiencing severe weakness, excruciating pain, massive sweats, and then on this particular day, chills, lethargy, and weakness. Unable to get-up to feed my infant son, I telephoned my closest friend and co-worker. I told her that my son was crying to be fed, and I could not get out of bed. She came over quickly, and called an ambulance. At the hospital, my physician ordered a series of tests, including an upper- and lower barium enema, and a very painful, black-rod shaped anal-scope for biopsy.

The local surgeon noted: "This 22-year old ... was seen at Dr. (my physician) request because of a lesion of the ascending colon (...). The patient is "pleasant, slim, slightly pale (...) not clinically jaundiced (...) there is an ill-defined, but definite mass in the right mid-abdomen, which is only slightly tender; the liver edge is not felt (...) a long, narrow, very irregular segment of distal ascending colon, showing complete destruction of the mucosa, measuring about 7.5 cm in length; overhanging edges are noted and the narrowest part of the lesion measures only about 8 mm in diameter. The terminal ileum was wellvisualized and appeared slightly dilated, thought to be due to a slight obstruction at the site of the lesion of the ascending colon. In the differential diagnosis (doctor) mentioned granulomatous colitis, carcinoma, lymphoma, and tuberculosis" (...). In the family history it is noted that an uncle and grandmother have both had cancer of the colon; there is

also cancer in other members of the family, but in other locations." (Personal Communication, 1982)

Consequently, the impression was that I would require abdominal surgery due to "a mass in the right colon that is causing partial obstruction as well as bleeding with resultant anemia (...) for diagnosis (...), and removal", (Personal Communication, 1981).

I was admitted to hospital "weighing 48 kg (105.82 lbs), 4 kg (8.8 lbs) less than usual" (Personal Communication, 1981).

From the hospital, I telephoned my mom (Windsor ON). My eldest brother answered. It went like this: "Hi Rick, get mom". He yelled, "Mom there's something wrong with (author)". Mom answered, and I said: "mom they say I have cancer in my colon". Mom said "Don't worry, your uncle Danny (her brother) had that, he's ok, and your grandma (her mom) had that and she's ok. We'll be there tomorrow".

The following day, my infant son was placed in a crib next to my bed. And sure enough, dad, mom and my eldest brother arrived. I bottle-fed from my bed up-to the day prior to my surgery. Mom took over, at my home, afterwards. On the day prior to surgery, I asked my surgeon if he thought my son could have inherited the colon cancer (as evident in my family history). He replied that "you will need to have the patience of Job". I was unsure what he meant by that statement, but followed-up by asking him to tie my tubes during surgery, such that I would not affect a future offspring.

Just prior to surgery, my mother placed a small medallion adorned with a tiny piece of black shroud in my hand "Relique, Mere Marie Rose, Italie" was stamped on it. It was given to her by a nun, blessed by her priest just prior to her departure yesterday. Mom said something about a miracle. A nurse taped the small medallion to me.

As such, I was operated at the Lake of the Woods District hospital in Kenora, Ontario, on June 8th 1981. The surgical team consisted of: Surgeon, Anesthetist, and Assistant personnel; the operation was "a right hemicolectomy; bilateral tubal ligation (fimbriectomy)".

The pathology (Personal Communication, June 9, 1981):

"Gross Specimen – Specimen consists of a terminal 8 cms of ileum, cecum and descending colon, the latter measuring 14 cms in length. Attached to this is also an appendix which measures 7 cms in length. Above the ileo-cecal valve and approximately 9 cms from the distal resection margin a large, circumferential and irregularly ulcerated mass extends for approximately 5 cms, and involves the full thickness of the colonic wall. It is formed by whitish opaque tissue which destroys and replaces extensively the bowel wall. In the fat surrounding the tumour numerous nodes, approximately 12, were identified measuring between 0.5 and 1 cms across. Some of them appear to be grossly involved by tumour".

“Microscopic – Sections show that the tumour is a well-differentiated adenocarcinoma of colon which infiltrates extensively and diffusely the bowel wall and invades the pericolonic fat. Numerous lymph nodes found in the area show rather extensive involvement by tumour metastasis. Other lymph nodes show only marked reactive changes, which are probably related to the extensive ulcer found in the tumour. The resection margins of the lesion are free of tumour. The appendix is histological unremarkable”.

“Diagnosis – Segment of terminal ileum, appendix, cecum and ascending colon – well-differentiated adenocarcinoma of ascending colon with metastasis to regional lymph nodes (DUKE “C”)”.

“Gross Description” – (A) Specimen consists of three nodes which measure approximately between 0.5 and 0.7 cms in the largest diameter. (B) Specimen consists of two lymph nodes measuring approximately 2 x 0.5 cms, the other measuring roughly 1 x 0.5 cms. The larger one shows, on section, a uniform, homogeneous appearance”.

“Microscopic – Sections show several lymph nodes with reactive hyperplasia only.” “Diagnosis – Reactive hyperplasia – LYMPH NODES OF MESENTERY.

I woke up with a series of metallic staples running vertically, centered yet slightly off the right side of the navel. There was to be no interferon (experimental) or cobalt treatment. No radiation, no chemotherapy, just the doctor saying “we’ll know in a year”. I replied “I’ll see my son graduate from college”. He asked if I smoked pot. Obviously, he knew something about the benefits of cannabis. That year, I survived cancer. Yet, my surgeon died of pancreatic cancer. I did witness my son graduate from college in 1991.

In 1988, I went off to medical school in Ottawa to work on a MSc program in the School of Anatomy. My health care provider was skeptical about the Duke “C” diagnosis (see above). She ordered a sample of my tumour from Toronto. It was reaffirmed that the cells were indeed cancerous, and Duke “C”.

In terms of family hereditary and non-polyposis colorectal cancer (HNPCC; see above), Mount Sinai Hospital Attending Doctor reported on 25 July 1997: “(Author) carries the same two-base pair deletion mutation at codon 878 (deletion AG) of MSH2 gene as identified in (author) mother. Therefore, (author) is affected with HNPCC”, Lynch Syndrome. A subsequent blood DNA sample taken in 2008 confirmed Lynch Syndrome. My son also has Lynch (diagnosed in 1998). Today, I am 63 and my son is 40. Through the years, I had various small adenomas removed through colonoscopies, cancer free. My son’s scopes continue to be unusual. My mother also tested positive to Lynch in the 1990s, as well as one of my two sisters, and one of my two brothers (as such, 50:50 chance of inheriting the disease in our family). Due to Lynch, mom also developed, breast cancer, endometrial cancer, kidney cancer, and skin cancer.

Similarly my sister developed a sarcoma in the right leg, in the groin region (right side), and eventually a diffused-glioma of the brain. Though my mother’s health is good at 87, my sister passed away this year.

I did return to higher education, earning a Master’s in Biology and Doctorate in Education, with a career in higher education as Vice Present Academics, Dean, Professor & Researcher. Nonetheless, through the years and still today, I wonder if during pregnancy my son contributed to my health in a positive manner. Did my son’s DNA, or stem-cells, back-up into my system and subsequently slow the progression of my Cancer? And, can this potential genetic mutation be controlled or even reversed? Furthermore, although my anatomy at the time of the colon cancer journey reflected that of a young female, I have since transitioned to male (F2M), and undergone top and bottom surgery. In so doing, and serendipitously, I may have reduced some of the chances of developing various Lynch Syndrome cancers, such as endometrial, ovarian, and