

Metastasis to Spleen in a Lynch Syndrome Patient: A Case Report

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ABSTRACT

Hereditary non polyposis colorectal cancer (HNPCC) also known as Lynch syndrome (LS), is an autosomal dominant cancer syndrome. Besides colorectal cancers, it predisposes patients to extracolonic cancers. Despite several extracolonic cancers have been reported on LS, we found a new face of it. A 43-year-old G2L2 patient with chief complaint of abnormal uterine bleeding. Her endometrium biopsy showed clear cell carcinoma, and the necessary work-ups have been done. But the patient's family history demonstrated HNPCC based on the Amsterdam 2 criteria. After some years, the patient presented to our hospital for fever, shivering and abdominal LUQ pain. Spiral CT scan showed a solid cyst with heterogeneous enhancement in the spleen, and hepatosplenomegaly. In this paper, another case with endometrial cancer as a sentinel cancer of LS is reported. This fact implicate that physicians should notice the family history of malignancies in patients with gynecologic cancers and consider LS.

Keywords: Lynch syndrome, Metastasis, Case report, Cancer

Introduction

Hereditary non polyposis colorectal cancer (HNPCC) also named as Lynch syndrome (LS), a familial cancer syndrome, which is autosomal dominant. This uncommon syndrome, besides colorectal carcinoma, predisposes patients to various extracolonic cancers (1). This syndrome is related to inactivating mutations in genes involved in DNA mismatch repair(MMR), such as MLH1, MSH2, MSH6, and PMS2 (2). This syndrome accounts for approximately 1-4% of endometrial cancers and 2-3% of colorectal cancers (3). Also, in middle eastern population cases of LS include approximately 1% of colorectal cancer samples (4). In patients with lynch syndrome the risk of developing colorectal cancer is up to 80% during their life. In addition, Women with lynch syndrome have a 20-60% risk of endometrial cancer (5). Also, people who carry at least one of these mutations have an increased lifetime risk of extra colonic cancers like endometrial, ovarian, stomach, pancreas, ureter, renal pelvis, bile duct, and brain tumors. This syndrome may also include sebaceous gland adenomas, and carcinoma of the small bowel,

however the incidence of aforementioned neoplasms are more rare than the other neoplasms (6). The screening may be effective for early detection of colorectal cancers, whereas the efficacy of surveillance for other organ tumors has not yet been established.

Although some different extra colonic cancers have been reported, we found a new face of LS. The present report describes a patient with lynch syndrome in whom splenic cancer was detected after assessing by spiral CT-scan which was done because the patient referred with chief complaint of high-grade fever, cough and dyspnea.

Case Report Presentation

A 43-year-old patient, gravida 2, para 2 (G2L2), presented at our hospital with symptoms of fever, shivering, and abdominal pain in the left upper quadrant (LUQ). The patient also experienced dyspnea, coughing, and weight loss. A spiral CT scan revealed a

solid cyst with heterogeneous enhancement and hepatosplenomegaly ([Figure 1](#)).

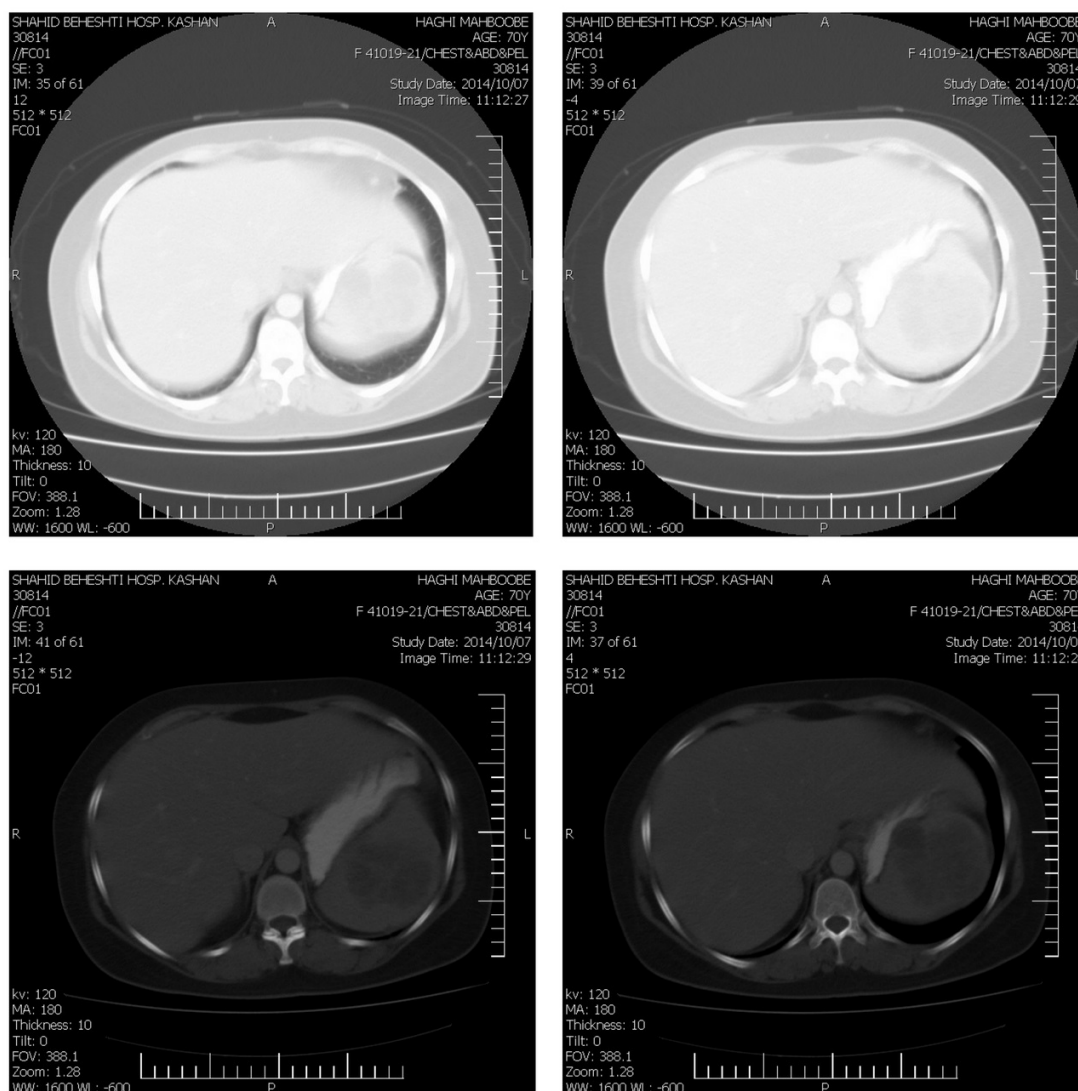


Figure 1. Two cuts of spiral CT-scan of the patients spleen mass(with negative view)

Four years ago, the patient with chief complaint of abnormal uterine bleeding (AUB) referred to a gynecologist. A biopsy of her endometrium showed clear cell carcinoma. The tumor located in the inferior segment (in the isthmus) and also invaded just stromal connective tissue of cervix (stage 2). She had undergone radical hysterectomy and lymphadenectomy (because of the cervix involvement) and bilateral salpingo-oophorectomy (BSO). Then she had undergone chemo and radiation therapy. The patient's family history demonstrated HNPCC based on the Amsterdam 2 criteria. The patient's brother has had colon cancer and died at 38-years-old. Her father's colon cancer was diagnosed in his 60s and her paternal side grandmother had colon cancer also. Her maternal side grandmother had a history of hepatic cancer. Because her family history

met the Amsterdam 2 criteria for diagnosis of lynch syndrome, after her endometrial cancer diagnosis, we sent her for genetic testing, which subsequently revealed germline mutation in the MSH2 gene and MSH6 gene ([Figure 2](#)), consistent with diagnosis of lynch syndrome.

The patient was placed under surveillance, but approximately one year later, she returned to our hospital due to abdominal pain and low back pain. Colonoscopy showed a mass in splenic flexure of the colon and pathology reported well differentiated invasive non-mucinous adenocarcinoma arising on villous adenomatous polyp with deeply invasion to submucosa ([Figure 3](#)). The patient underwent terminal ileum resection and total colectomy with rectum conservation.

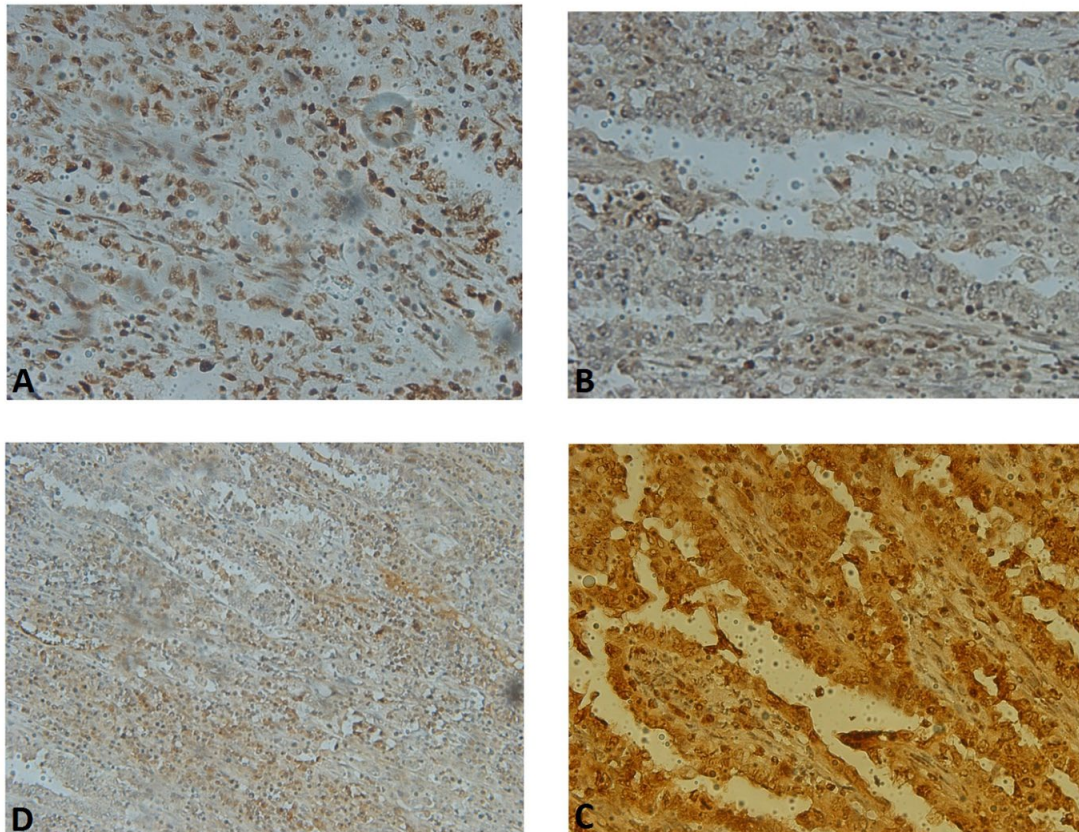


Figure 2. Immunohistochemistry of the patient's endometrial mass (pic-A hMSH2. pic-B MLH1. pic-C hMSH6. pic-D PMS2) that just hMSH2 and hMSH6 were positive.

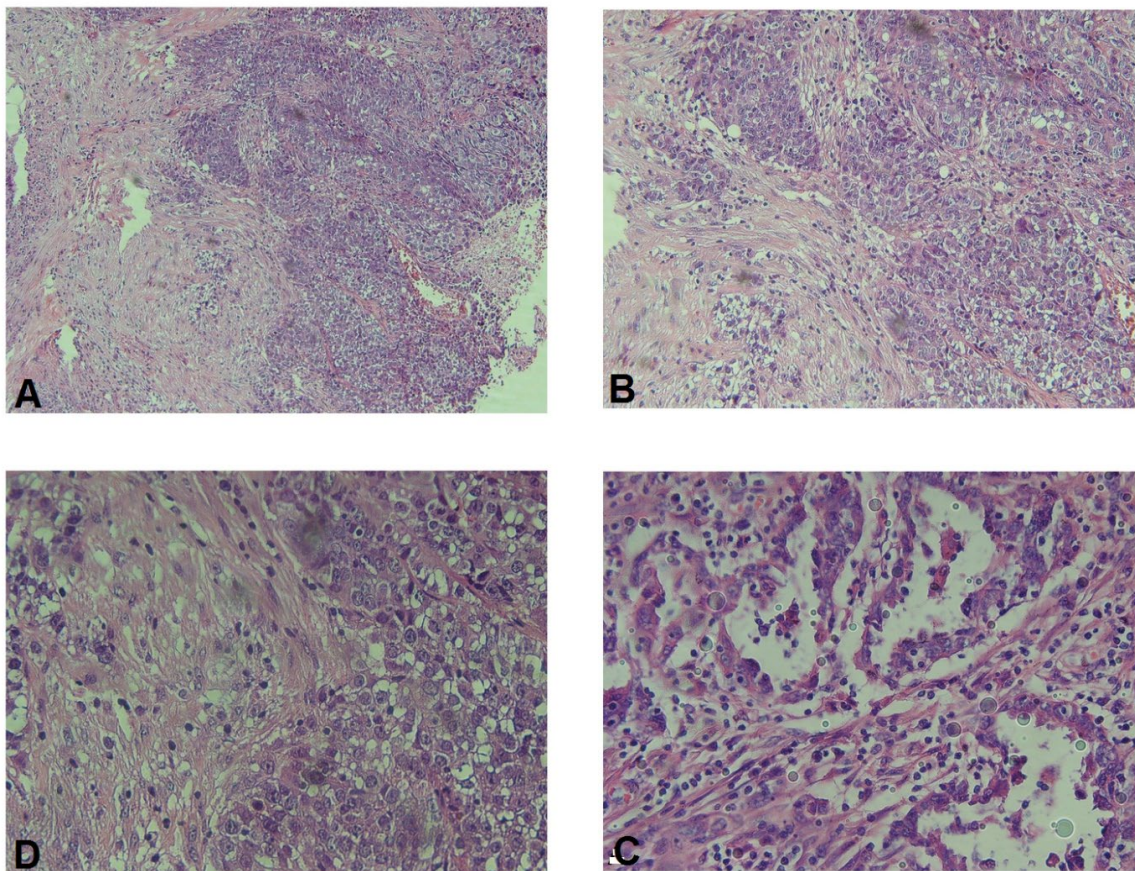


Figure 3. Pathologic samples or microscopic view of the patient's spleen mass (A*4 - B*10 - C*40 - D*100)

Almost one year later, the patient presented again with complaints of fever, shivering, and abdominal pain in the left upper quadrant (LUQ). The review of systems was unremarkable. A subsequent spiral CT scan showed a solid cyst with heterogeneous enhancement in the spleen, as well as hepatosplenomegaly.

After splenectomy surgery, chemotherapy started for her and after some chemo sessions she had been cured and felt well. But after two years, she referred with back pain one more time. Work-up had been done on her and a gastric tumor was found. Once more, surgical resection was done for her. Now she feels well and has returned to her normal life that she deserves. Unfortunately, because she was referred to another hospital, we don't have enough information about her last surgery and chemotherapy.

Discussion

Lynch syndrome, also known as hereditary non-polyposis colorectal cancer (HNPCC), is the most common form of hereditary colorectal cancer. It is described as an autosomal dominant syndrome with incomplete penetrance, and accounts for approximately 2-3 percent of newly diagnosed cases of colorectal cancers and 1-4 percent of endometrial cancers (1).

Commonly, the sentinel cancer in lynch syndrome is colorectal cancers. Although there are some reports indicating that gynecologic cancers can be sentinel cancer in lynch syndrome (7-9). In this paper, a case with endometrial cancer as a sentinel cancer of lynch syndrome is reported. This fact implicate that physicians should notice the family history of malignancies in patients with gynecologic cancers and consider lynch syndrome.

MMR genes mutation varies between lynch syndrome patients and are usually family-specific. It shows that certain mutations make each specific patient susceptible to developing unusual tumors. Actually, this finding has been recommended in a case report describing an unusual spectrum of tumors in a family of patients with lynch syndrome (7). Another study described the occurrence of four unusual tumors in patient with LS, suggesting that the spectrum of tumors associated with this syndrome may be wider than is currently appreciated (8). Also, in a study it was reported that mutations in MLH1 and MSH2 account for almost 90% of all LS patients (1) Consistent with that, the MSH2 mutation was detected in this patient. However, there has not been enough evidence yet, that let us relate spleen involvement to MSH2 gene mutation.

Many case reports have been published already, and reported several rare cases, namely: in a study, corticotroph pituitary carcinoma in an LS patient has been reported (10) Another study reported peritoneal mesothelioma in an LS patient (11) Also another study reported papillary thyroid carcinoma (PTC) (12), and there are many other case reports that presented organ involvements which are new to us in LS patients, but none of them have reported spleen involvement yet.

Although some studies have shown that the spleen is not an appropriate bed for metastasis and secondary splenic neoplasms, and even primary spleen neoplasms are rare (13, 14) but in this case, after several months of total colectomy, when the patient referred with fever, shivering, abdominal LUQ pain, dyspnea, coughing and weight loss, the assessment with spiral CT scan showed a solid cyst with heterogeneous enhancement in spleen. So the patient underwent splenectomy surgery, and pathology examination reported metastatic clear cell carcinoma of the uterus.

Conclusion

Based on our search, this is a new face of lynch syndrome, because we couldn't find any splenic involvement in previous studies. Although the pathological examination reported metastatic clear cell carcinoma, but we are not sure if lynch syndrome can directly involve the spleen or not. So this report recommends to consider other organs which their involvement is not usual in lynch syndrome. Therefore, this case was valuable to report from two points of view, first because of the rarity of metastasis to spleen tissue, and second the importance of gynecologic cancers as the sentinel cancer in lynch syndrome.

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Conflict of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

References

1. Barrow E, Hill J, Evans DG. Cancer risk in Lynch syndrome. *Fam Cancer*. 2013;12(2):229-40. [DOI:10.1007/s10689-013-9615-1] [PMID]
2. Lynch HT, Lynch P, Lanspa S, Snyder C, Lynch J, Boland C. Review of the Lynch syndrome: history, molecular genetics, screening, differential

- diagnosis, and medicolegal ramifications. *Clin Genet*. 2009;76(1):1-18. [PMID] [PMCID] [DOI:10.1111/j.1399-0004.2009.01230.x]
3. Lynch HT, de la Chapelle A. Hereditary colorectal cancer. *New Engl J Med*. 2003;348(10):919-32. [DOI:10.1056/NEJMra012242] [PMID]
 4. Siraj AK, Prabhakaran S, Bavi P, Bu R, Beg S, Hazmi MA, et al. Prevalence of Lynch syndrome in a Middle Eastern population with colorectal cancer. *Cancer*. 2015;121(11):1762-71. [DOI:10.1002/cncr.29288] [PMID]
 5. King M-C, Marks JH, Mandell JB. Breast and ovarian cancer risks due to inherited mutations in BRCA1 and BRCA2. *Science*. 2003;302(5645):643-6. [DOI:10.1126/science.1088759] [PMID]
 6. Umar A, Boland CR, Terdiman JP, Syngal S, Chapelle Adl, Rüschoff J, et al. Revised Bethesda Guidelines for hereditary nonpolyposis colorectal cancer (Lynch syndrome) and microsatellite instability. *J Natl Cancer Inst*. 2004;96(4):261-8. [DOI:10.1093/jnci/djh034] [PMID] [PMCID]
 7. Palomaki GE, McClain MR, Melillo S, Hampel HL, Thibodeau SN. EGAPP supplementary evidence review: DNA testing strategies aimed at reducing morbidity and mortality from Lynch syndrome. *Genet Med*. 2009;11(1):42. [PMID] [PMCID] [DOI:10.1097/GIM.0b013e31818fa2db]
 8. Lu KH, Dinh M, Kohlmann W, Watson P, Green J, Syngal S, et al. Gynecologic cancer as a "sentinel cancer" for women with hereditary nonpolyposis colorectal cancer syndrome. *Obstet Gynecol*. 2005;105(3):569-74. [PMID] [DOI:10.1097/01.AOG.0000154885.44002.ac]
 9. Soliman PT, Broadus RR, Schmeler KM, Daniels MS, Gonzalez D, Slomovitz BM, et al. Women with synchronous primary cancers of the endometrium and ovary: do they have Lynch syndrome? *J Clin Oncol*. 2005;23(36):9344-50. [DOI:10.1200/JCO.2005.03.5915] [PMID]
 10. Bengtsson D, Joost P, Aravidis C, Askmal M, Stenmark M, Backman AS, Melin B, et al. Corticotroph Pituitary Carcinoma in a Patient With Lynch Syndrome (LS) and Pituitary Tumors in a Nationwide LS Cohort. *J Clin Endocrinol Metab*. 2017;102(11):3928-32. [PMID] [DOI:10.1210/je.2017-01401]
 11. Lu Y, Milchgrub S, Khatri G, Gopal P. Metachronous Uterine Endometrioid Adenocarcinoma and Peritoneal Mesothelioma in Lynch Syndrome: A Case Report. *Int J Surg Pathol*. 2017;25(3):253-7. [DOI:10.1177/1066896916680745] [PMID]
 12. Pelizzo MR, Pennelli G, Zane M, Galuppini F, Colletti PM, Merante Boschini I, et al. Papillary thyroid carcinoma (PTC) in Lynch syndrome: Report of two cases and discussion on Lynch syndrome behaviour and genetics. *Biomed Pharmacother*. 2015;74:9-16. [DOI:10.1016/j.biopha.2015.06.008] [PMID]
 13. Pugalenti A, Bradley C, Gonen M, Do KG, Strong V, Jarnagin W, et al. Splenectomy to treat splenic lesions: an analysis of 148 cases at a cancer center. *J Surg Oncol*. 2013;108(8):521-5. [DOI:10.1002/jso.23433] [PMID]
 14. Comperat E, Bardier-Dupas A, Camparo P, Capron F, Charlotte F. Splenic metastases: clinicopathologic presentation, differential diagnosis, and pathogenesis. *Arch Pathol Lab Med*. 2007;131(6):965-9. [PMID] [DOI:10.5858/2007-131-965-SMCPDD]

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