

# Colon Cancer Imaging

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**Abstract— This is a summary of Colon cancer imaging in general. It provides backgrounds to its beginnings and where it is heading in the near future. Colon cancer remains one of the leading causes of death in men, therefore the screening and testing needs to advance in attempts to reduce the number of deaths each year.**

## I. INTRODUCTION

AS I sat in my dorm room watching television, I got a call from my mother one night in October of 2011. This call, without my knowing, would change my life at that very moment. She told me that they had found a malignant polyp in my father's colon during his first colonoscopy at the age of fifty. Immediately I thought about losing my father. Not yet knowing the extent of the cancer I was on edge until the next week when I received another phone call. This time it was to tell me about the results of the polyp and lymph nodes removed during surgery. My father was diagnosed with stage three colon cancer at age fifty. Currently he is undergoing a six month, twelve treatment regimen of chemotherapy. For this very reason, I chose to do my presentation on Colon Cancer Imaging. Without having this technology, there is no saying how much longer my father would have made it.

Colon cancer is a disease in which malignant, or cancerous, cells form in tissue of the colon. Many people will develop polyps in their colon. For the most part these polyps will be benign. This means that they pose no threat to your health and can be easily removed and you can continue on with your life. However, there are the cases when the polyps become malignant and surgery and chemotherapy or radiation is necessary. Symptoms of having colon cancer may include a change in bowel habits or bleeding. Nevertheless, colon cancer usually strikes without symptoms.

A polyp is a small clump of cells that forms on the lining of the colon. Anyone can develop a polyp, but you are at a higher risk if you are age fifty or older, overweight, have a high fat low fiber diet, or have a family history of colon cancer. Polyps that are found in the early stages can usually be removed safely and easily. Issues arise when the polyp is not found until the later stages. There are five stages of colon cancer, stages one through five, five being the worst. The higher the stage the harder the cancer is to cure. This is because the polyp eats through the lining of the colon and eventually reaches the lymph nodes if not treated. From there the cancer can spread throughout the entire body and the outcome is catastrophic.

## II. METHODS

The Pillcam colon is a small capsule that radio transmits thousands of images of the colon as it passes through to a computer where the doctor can then view the images. The

procedure is far less invasive than a regular colonoscopy. A sensory array is attached to the patient's abdomen and a data recorder belt is put around their waist. The Pillcam is then taken by mouth with a glass of water along some cleansing agents provided by the doctor. The treatment takes ten hours, after which the patient returns the sensory device. The pill will be naturally passed with a bowel movement usually within twenty four hours and does not need to be retrieved.



## III. HISTORY

Looking at the history of colon cases in the world, around 72 percent begin in the colon and around 28 percent begin in the rectal area. The risk of getting colon cancer for men and women is about 5.9 percent and 5.5 percent respectively. As you can see from the above numbers, men are at a higher risk than women of getting the cancer. A diet that is rich in cholesterol and fat is linked to having a greater risk in getting the disease. Studies show that decreasing red meats in your diet and adding fruits can help lessen your risk.

More than 52,000 people will die from colon cancer this year and approximately 130,000 patients will receive the diagnosis according to the American Cancer Society. Despite these high numbers, nearly one in three men and women age 50 and older have not been screened for colon cancer. With colon cancer being the third most common cancer in men and women this seems foolish. That is why it is so important to be screened. A colonoscopy is currently the most common test to screen for colon cancer. During the procedure, an endoscope with a camera at the end is placed up the rectum. The procedure is very uncomfortable and quite frankly violating. This is why so many people choose not to be screened.

## IV. DISCUSSION

Imaging technology of the colon can only go so far no matter how high-tech technology becomes. It will always only be able to image the colon, not fix the problem. Also, computer and human error are always a factor. As great as technology is, a glitch can always occur and give a skewed image.

The future of colon cancer imaging looks to be the Virtual colonoscopy or CT colonography. The virtual colonoscopy will allow patients to be informed about the condition of their colon noninvasively and then allow them to

decide whether or not to have a conventional colonoscopy for a polypectomy. A polypectomy is the procedure in which they remove the polyps from the colon wall lining. The virtual colonoscopy looks to be the primary method of colon screening in the near future. Results thus far show that the accuracy is comparable to a colonoscopy for detection of polyps that are greater than 10mm. With this, hopefully more people will be willing to be screened because the procedure is less invasive and doesn't require you to be violated unless a polyp is found.

Personally, the future outlook of colon cancer imaging is very encouraging. With my father having colon cancer, I will now have to be screened at age forty instead of age fifty. The new technology and screening methods for the future make me very optimistic about having the procedure done as well as it should make other people feel more comfortable. The new technology should show a decrease in the number of people who refuse to be screened for colon cancer. This will hopefully save many lives and lessen the death rate at which colon cancer is currently at.

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