**HEALTH VARIATIONS**

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# 1. Explanation of the pathogenesis of ulcerative colitis, relating these developments to Eleanor’s clinical manifestations

At present, ulcerative colitis and Crohn’s disease are not diagnosed by simple pathology tests. However, these tests are important as they can be supportive of diagnosis and can be used to monitor the activities of the disease. They determine the effectiveness of the medicines and monitor the complications that are associated with the medicines. Routine for IBD includes

* Complete blood count for detecting any infection and anaemia
* Markers for inflammation such as Erythrocyte Sedimentation Rate (ESR) and C-reactive protein
* Liver function tests for determining the problems in liver and bile duct, which are occasionally seen in few people with Crohn’s ulcerative colitis. Some medications are used for treating IBD, which are associated with the abnormalities in liver and are hence required to be monitored on a regular basis.
* Electrolyte panels can be used for measuring levels of some minerals, which can be associated with IBD-associated diarrhoea.
* Vitamin B-12, which can be low if the small intestine is not working properly and not absorbing nutrients due to Crohn’s disease.

Initial tests which were conducted for Eleanor Rigby obtained the results in which Haemoglobin, Haematocrit, and white cell count was found to be 87 g/L, 25.3% and 14.8×109/L respectively. The serum protein, serum albumin, erythrocyte sedimentation rate and C - reactive protein was found to be 44g/L, 25g/L, 27mm/hour and 28mg/dl respectively.

There is a strong association between the major histocompatibility complex and to ulcerative colitis since the region consists of immune-regulatory genes such as the leukocytes HLA, tumour necrosis factor TNF alpha and cytokines (Moayyedi *et al*. 2015). The HLA-DRB locus is the probable detector of corticosteroid-dependent disease. The IBD on chromosome 5 q1 is known to be associated with both ulcerative colitis and Chron's disease. IL 12, which is a regulator of interleukin IL 23, and IL 12 share the p40 subunit. The differentiation of immature T cells is affected by the two-interleukin moieties. Then T cell is differentiated into effectors helper cells or Th17, which plays a significant role in pathogenesis.

# 2. Describing the clinical manifestations of ulcerative colitis

The clinical manifestations experienced by Eleanor Rigby are as follows

**Diarrhoea:** As intestine considers every ingested material as foreign the immune cells want to elicit an immune response as soon they receive an antigenic response. Stool usually contains ruptured cells from the large intestine and blood cells.

**Abdominal cramping:** Since the immune cells are most reactive and there is severe inflammation in the intestine, due to the accumulation of white blood cells in Eleanor Rigby. Therefore Eleanor experienced abdominal pain because her condition was quite severe and chronic (Rossen *et al*. 2018).

**Rectal bleeding:** The inflammatory cells are attracted to the site of infection where the cytokines are released. The inflammatory site of the colon develops injury and the pressure generated on the ulcers makes it bleed more.

**Urge to defecate:** As a result of the frequent urge to defecation, Eleanor Rigby lost her weight. The immune system of the lady worked to eliminate the foreign material from the body as a result of frequent defecation.

# 3. Mechanism of action of sulfasalazine in relation to the treatment of ulcerative colitis

Sulfasalazine is used in the treatment of ulcerative colitis because this drug is well absorbed in jejunum when administered orally, then it passes down the colon and gets reduced by a bacterial enzyme to sulfapyridine derivative (Sandborn *et al*. 2016). A large quantity is excreted in bile with a minute quantity excreting in urine. However, a by-product formed in the reaction is 5-ASA, which is least, absorbed in the colon after it is metabolised in the liver. The efficacy of sulfasalazine is affected by 5- ASA but has some side effects that are experienced by the patient post-treatment. Eleanor also experienced the side effects in terms of weight loss and feeling of tiredness.

# 4. Describing the surgical procedure that Eleanor will experience

As soon as a patient is admitted in a healthcare facility and before he is taken for the surgery, the healthcare professional monitors the Blood pressure, Heart rates, respirations per minute, temperature of the body, level of SaO2 in the atmosphere, his weight and height for evaluating any risks in the body of patient before surgery. The preliminary observations for Eleanor stated that his Blood Pressure level, PR and respirations were 105/60, 120 beats per minute and 20 breaths per minute respectively. The temperature of Eleanor was 37.6 and room air consisted of 98% of SaO2. The weight and height of Eleanor were 52kg and 162cms respectively.

Elenor will undergo surgery for proctocolectomy with ileal pouch formation followed by temporary ileostomy

The procedure that will be applied on Eleanor will preserve her anal part allowing the patient to experience regular bowel habits. The surgeon will remove the injured part of Eleanor along with the interior part of her rectum where the outer muscle will stay intact. The surgeon will make an external pouch attached to the ileum to the inside of the rectum. Eleanor will store her waste in that pouch which will be passed through the rectum in the usual manner. Eleanor might experience the bowel movement to be watery and more frequent than usual procedure and there can be a serious complication arising from the pouch. This type of medical condition is called pouchitis (Torres *et al.* 2017).

# 5. The expected output from Eleanor’s ileostomy in the initial stage after the operation

After ileostomy procedure is performed, the surgeon creates an opening in the abdomen called stoma where Eleanor’s intestine will be attached to making the ileum. Metabolic wastes will be transported through stoma by movement through the small intestine. This orifice is made in the lower right part of the abdomen. The pouch opens during waste collection and Eleanor will empty the pouch when required. However, the expected outcome of the process involves certain complications such as

* Obstruction from in taking solid foods or inactivation of the stoma
* Dehydration is an increased risk since the large intestine is removed so absorption of water is affected
* The patients sometimes experience a rectal discharge post operation (Colombel *et al.* 2017).

# 6. Discussing the dietary advice for Eleanor promoting comfort and eliminating risk for

**Ileostomy obstruction**

The ileostomies are put into action within 24 hours after the operation. The first output is watery around 1200 ml, after in taking sufficient food the output is thickened in consistency ad volume gets reduced to 800 ml (Kemp *et al*. 2019). However, the large intestine absorbs water and post removal of the part, results in obstruction from several reasons such as solute food and reduced motility of food due to poor water absorption (Onidi *et al*. 2019).

Eleanor will be advice for a light diet after her operation for a few days. The light diet includes the following

* Cornflakes
* soup
* White bread
* Omelette
* Boiled fish
* Boiled vegetables
* Mashed potato

# Conclusion

Patients affected with ulcerative colitis should be very cautious for a few days after the surgery. Infection people cause the inflammation by proteins and inflammatory cells cause abdominal discomfort. However, in IBT patients the immune system of the patient considered every injected material as foreign therefore release white blood cells for the destruction of antigen hence produces puss. The operative process includes surgical removal of the large intestine, which has adverse effects on the human body. However, the operated patient has to follow a light diet plan so that there is no obstruction faced in the intestine. In addition to changing behaviour to a healthy lifestyle and regular exercise will help the affected individual for faster recovery.

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