Case Study – Endometriosis

Task 1 – Pathophysiology

Endometriosis is the occurrence of endometrial lesions outside the uterus, mainly on ovaries, pelvic peritoneum, and rectovaginal septum. These lesions can be ovarian cysts, peritoneal lesions, or stroma-like lesions. Deep endometriosis may result from nodules penetrating to a depth of greater than 5 mm (Bryant et al., 2019). The primary hypothesis for its development is the retrograde flow of the endometrial lining into the pelvic space through the fallopian tubes. As the endometrial tissue gets lodged in ectopic sites in the pelvic cavity, it is acted upon by inflammatory, immunologic, and hormonal factors, causing it to persist as endometrial lesions (Zondervan et al., 2020). Extrapelvic endometriosis can also occur due to the transport of endometrial tissue through blood vessels and lymphatic vessels (Jerman and Hey-Cunningham, 2015).

Pelvic pain is one of the most significant symptoms of endometriosis, and it may be either visceral or somatic. Visceral pain originates from the organs bearing the endometrial lesions such as uterus, rectum, and bladder, whereas somatic pain originates from sensory nerves present in the affected tissues. The pain may be chronic, appear just before the onset of menses, or occur as dyspareunia. The origin of the pain is presumed to be nociceptive, as the endometrial lesions cause damage to the tissues and stimulate nociceptive neurons. As the pelvis is highly enervated and vascularized, pain impulses from this region are directly sent to the brain contributing to endometriosis-related pain in women (Laux-Biehlmann et al., 2015).

Around 30 to 70% of women who have endometriosis experience pain during sexual intercourse, also known as dyspareunia. Eventually, this leads to sexual dysfunction, and downstream effects on psychological and emotional health of patients. Pain perceived due to endometriosis during sexual activity is deep dyspareunia that is felt in the pelvic region or the vaginal canal. Endometrial lesions release estradiol locally, which initiates inflammatory processes. Local inflammation stimulates peripheral nociceptors leading to pain presentation during sexual activity. The existence of other pelvic pain conditions such as bladder pain syndrome, interstitial cystitis, and irritable bowel syndrome can further exacerbate dyspareunia (Yong, 2017).

Task 2 – Medication

1. Hormonal medications

Hormonal treatment of endometriosis is symptomatic and not curative, and it can suppress symptoms such as pain, dysmenorrhea, and infertility. It represents the first choice of treatment for endometriosis. The most widely used hormonal medications are gonadotropin-releasing hormone (GnRH) agonists, which are found to be highly

effective against pain. However, they result in a hypoestrogenic environment in the body, and the patient may experience adverse effects such as mood instability, osteopenia, genital hypotrophy, and vasomotor symptoms (Di Guardo et al., 2019). Apart from this, Danazol, gestrinone, and progestins can also be used as alternative medications; however, danazol and gestrinone can result in a hyperandrogenic environment and progestins can cause a hyperprogestogenic environment in the body. Some of the adverse effects of these medications are seborrhea, weight gain, and hypertrichosis (Lagana et al., 2017).

Low-dose oral contraceptive hormonal tablets are effective for long-term use in terms of pain control, safety, and compliance. These medications create a hormonal balance in the body by inducing the decidualization and atrophy of the endometrial lesions. Also, these tablets can help control retrograde flow during menstruation, which is considered one of the most important causes for the development of endometriosis. Continual use of these medications can help maintain a steady state of the hormones, thereby controlling the proliferation of endometrial cells (Di Guardo et al., 2019).

2. Aromatase inhibitors

Aromatase is an enzyme that is primarily produced by ovarian cells in premenopausal women, apart from skin fibroblasts, adipose tissue, and brain. It converts testosterone into estradiol and androstenedione into oestrone, and these products create a conducive environment for the development of endometriosis. Aromatase inhibitors prevent the synthesis of these oestrogens, thereby controlling the development and proliferation of endometrial tissues in the body (Slopien and Meczekalski, 2016).

Third generation aromatase inhibitors are the most widely used medications which include letrozole, anastrozole, and exemestane. They are considered to be more potent and selective as compared to the first and second generation aromatase inhibitors. They are very effective in decreasing oestrogen levels and increasing follicular stimulating hormone (FSH) levels in premenopausal women. Its side effects are consequences of low oestrogen levels and they include headaches, back pain, vaginal dryness, arthralgia, and hot flushes (Dunselman et al., 2014).

Task 3 – Nursing care

One of the most frequently reported symptoms of endometriosis is irregular and heavy menses, which, over time, leads to depletion of iron in the body with consequential fatigue, malaise, and weakness. Apart from heavy menses leading to extreme blood loss, endometriosis causes chronic systemic inflammation, which leads to iron unavailability in the body. Endometrial tissue produces proinflammatory cytokines, which eventually induces the endocytosis of iron transporter proteins that are

responsible for the transport of iron throughout the body. Iron absorption in the digestive tract is also disrupted due to inflammatory cytokines produced in endometriosis. All these mechanisms results in the sequestration of iron in bone marrow, liver, and spleen, thereby reducing the levels of systemic iron for erythropoiesis and cell metabolism (Atkins et al., 2018).

The first step to providing nursing care to the patient would be to carry out a complete assessment of the patient. The patient has already been diagnosed with endometriosis and consequential anemia. A physical examination would need to be carried out which would involve checking the pallor of the mucous membranes, and asking the patient about specific anemia-related symptoms such as fatigue, tiredness, weakness, and low energy levels on a regular basis. Depending on the extent to which the patient is found to be anemic, iron may need to be administered through transfusion intravenously. Guidance for an iron-rich diet should be provided and iron supplements should be recommended to ensure normal levels of iron in the body. If fatigue is a significant complaint of the patient, she should be advised to take sufficient rest and practice energy conservation techniques to avoid exertion. The patient should also be advised to constantly monitor hemoglobin levels and take action if they are found to be lower than normal (Jimenez et al., 2015).

Task 4 – Critical thinking

1. Endometriosis and infertility

The link between endometriosis and infertility, though proven, is still elusive in terms of the exact mechanisms. In terms of prevalence, around 25 to 50% of women who have infertility are diagnosed with endometriosis, thereby proving endometriosis as a definitive cause of infertility (Prescott et al., 2016). Endometriosis results in the production of proinflammatory cytokines and angiogenic factors by endometrial tissues, which changes the composition of peritoneal fluid in the pelvic cavity. There is an increase in macrophages, phagocytes, T lymphocytes, and natural killer cells in the pelvic cavity, which disrupt the normal inflammatory processes of the body (Harris and Tsaltas, 2017).

When endometrial tissue develops on the ovaries, the normal ovarian tissue is reduced in quantity due to space-occupying effects of the endometrial cysts, leading to defects in ovarian functions (Tanbo and Fedorcsak, 2017). Induction of inflammatory processes by the endometrial tissues leads to the inflow of inflammatory factors such as interleukins and tumour necrosis factor α, which further disrupt ovarian functions (Opoien et al., 2013). The presence of interleukin-6 in the pelvic cavity has also been shown to affect sperm motility, and other inflammatory mediators in the peritoneal fluid may also cause damage to the sperm DNA. Apart from this, the interaction between egg

and sperm may be adversely affected due to the environment of oxidative stress created by ectopic endometrial tissues (Tanbo and Fedorcsak, 2017).

A major consequence of endometriosis is disruption of the hypothalamo-pituitary-ovarian axis that may result in a long follicular phase, low levels of estradiol in the serum, and decrease in concentration of luteinizing hormone, all of which contribute to infertility. The dysfunction of pituitary gland as a result of endometriosis can cause disturbances in folliculogenesis, release of low quality eggs, and decreased endometrial receptivity. Endometriosis also causes progesterone resistance in the body, which result in high levels of oestrogens, which, in turn, induce inflammatory processes, eventually leading to infertility (Llarena et al., 2019).

2. Endometriosis and anxiety

Endometriosis is a benign chronic female reproductive disorder that is extremely prevalent in women of the reproductive age. Its occurrence has been linked to several psychiatric symptoms such as anxiety, depression, psychosocial stress, and reduced quality of life in women (Pope et al., 2015). Endometriosis causes chronic pelvic pain which may be menstrual or non-menstrual, pain during ovulation, dyspareunia, dysuria, and dyschezia. Women who suffer from one or more of the above mentioned types of pain also suffer from anxiety and depression, limited functional abilities, limited social abilities, and poor quality of life. Disability caused due to pain is an important reason for anxiety in patients suffering from endometriosis (Lagana et al., 2017).

According to the case details, the patient is teary and uncomfortable after recently being diagnosed with endometriosis. This indicates that the patient is psychologically disturbed, and this is an important marker for development of anxiety. As the diagnosis is recent, it is important that the nurse talk to the patient to find out more about the patient’s state of mind regarding her diagnosis. This will give significant insights into the patient’s psychological and emotional well-being (Gao et al., 2019).

A nursing intervention that has been shown to be extremely promising to promote the mental and emotional health of women suffering from endometriosis is self-care based counselling. Patient-oriented counselling sessions can promote positive outcomes of endometriosis in women and encourage them to participate actively in therapeutic programmes. It can also help patients adhere to their treatment regimen, understand the disease and rationale of treatment, control their emotions, improve their quality of life, feel happy and secure, feel less anxious and depressed, and enhance their satisfaction levels. It can also enable the patients to realize that a lot of women suffer from this condition and that there are plenty of resources they can access to help them deal best with their diagnosis (Farshi et al., 2020).

3. Endometriosis and health professionals

The most important health professional that will help plan the treatment regimen for the patient will be a gynecologist. Most symptoms of endometriosis are associated with irregularities in the menstrual cycle, and symptoms that are cyclic such as nausea, vomiting, and pain. Also, infertility is the most important condition for which women seek help. A gynecologist is ideally suited to diagnose the reason for infertility, pain, and irregular menses, identify the severity of endometriosis, make plausible connections with the location of endometrial tissues and the patient's symptoms, and appropriately recommend therapeutic strategies. The gynecologist will also be able to understand the patient's goals such as pain relief and conception, plan therapies accordingly, and assess the suitability and success of the treatment. This health professional has specialized knowledge about the female reproductive system and can answer any doubts or concerns of the patient or her family regarding endometriosis (Rowe et al., 2019).

Endometriosis is strongly linked to infertility in as much as 50% of the affected women, and it is a significant concern in patients in the reproductive age. As this patient is in her early 20s, it is obvious that infertility is an immense cause of concern for her. Also, she is engaged and may soon want to start planning a family. Therefore, another health professional who can help her is an infertility specialist. These professionals recommend targeted medications, procedures, and techniques based on the patient's health and diagnostic history to increase their chances of conception. One of the important procedures is laparoscopy aimed at removing the endometrial lesions thereby encouraging fertilization. However, there are certain situations where this may not be suitable and may cause more harm. So, an infertility specialist can review a patient's condition and recommend the best therapy for them (Elnouri, 2016).

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