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The Relationship Between Ovarian Cancer and Depressive Symptoms: A Case Report

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ABSTRACT: Ovarian cancer is a malignant tumor originating from the ovaries, affecting various age groups, with multiple histological types. Depression is a common mental disorder characterized by emotional and physical symptoms. Cancer diagnosis and treatment are widely recognized as major psychological stressors that can precipitate or exacerbate mental health disturbances, particularly depressive and anxiety disorders, due to the profound emotional, social, and physiological challenges experienced by patients. This case report highlights the relationship between ovarian cancer and depressive symptoms. This case report examines the relationship between ovarian cancer and depressive symptoms, with a focus on the psychological and inflammatory pathways influencing mental health. A 44-year-old woman presented with a loss of interest in activities, beginning three weeks after her ovarian cancer diagnosis. Research indicates that factors such as advanced cancer stage, poor physical functioning, and the absence or discontinuation of chemotherapy due to disease progression or treatment intolerance may increase the susceptibility to mental health disorders among ovarian cancer patients. Cancer patients, including those diagnosed with ovarian cancer, experience heightened stress and depression compared to those with non-neoplastic diseases. Depression can arise due to both psychological stress and inflammatory processes triggered by cancer treatments.

Keywords: Ovarian Cancer, Depressive Symptoms, Cancer-Related Stress, Mental Health.

INTRODUCTION

Ovarian cancer is a type of malignant tumor that originates in the ovaries, with various histological forms, and it can impact individuals of all ages (Arbani et al., 2023). According to the Global Cancer Observatory (Globocan, 2022), the global burden of ovarian cancer is expected to rise significantly over the coming decades (Bray et al., 2018). The American Cancer Society (2025),

estimates for ovarian cancer in the United States for 2025 are about 20,890 women will receive a new diagnosis of ovarian cancer(Cankurtaran & Halis Gunel, 2024; Doubeni et al., 2016).

The high mortality rate is caused by asymptomatic and hidden tumor growth, delayed onset of symptoms, and a lack of appropriate screening, which results in ovarian cancer being diagnosed at an advanced stage. The disease is frequently diagnosed at an advanced stage because its early symptoms are often vague and nonspecific, such as abdominal discomfort, bloating, or changes in appetite. Consequently, nearly 70% of patients are diagnosed at stage III or IV, which significantly worsens the prognosis and survival rates.

Ovarian cancer is the fifth leading cause of cancer-related deaths among women and accounts for more fatalities than any other malignancy of the female reproductive system, with a higher incidence in older women (Society, 2020). According to the Indonesian Gynecological Oncology Association, 354 ovarian cancer cases were reported in 2012, making it the second most prevalent gynecological cancer in the country (Millet, 2024; Pitasi et al., 2024; Suastari, 2017). Early detection and timely, appropriate treatment significantly improve survival rates. Currently, diagnostic methods for ovarian cancer include ultrasound, CT scans, PET scans, and MRI. Among these, ultrasound serves as an initial, cost-effective, non-invasive, and relatively accurate tool for evaluating adnexal masses and distinguishing between high- and low-risk lesions.

The exact cause of ovarian cancer remains unclear; however, several studies have identified multiple risk factors, including age, age at menarche, parity, family history, body mass index (BMI), and contraceptive use. According to Zheng et al. (2018), the incidence of ovarian cancer increases with age, with most cases occurring in women over 50 years old. As age advances, the likelihood of developing ovarian cancer becomes higher, while the overall life expectancy among affected women tends to decline(Nuseibeh et al., 2024).

Ovarian cancer development is a multistep process that typically involves the accumulation of several gene mutations over time, transforming normal cells into malignant ones. Researchers continue to explore why these genetic changes occur. Some contributing mechanisms include repeated ovarian damage during ovulation, which can trigger cellular repair processes and potential mutations, as well as chronic inflammation associated with aging, which may increase cancer risk (American Cancer Society, 2025).

Furthermore, recent studies have refined familial risk analyses by considering both the type of family relationship and ovarian tumor histology. Findings from the Swedish Family-Cancer Database indicate that women with an affected sister have a higher risk of developing ovarian cancer than those with an affected mother. The risk becomes even greater when both a sister and mother are affected. Additionally, studies from the Swedish Family-Cancer Database and the Ovarian Cancer Cohort Consortium (OC3) revealed a stronger association between a family history of ovarian cancer and the risk of serous ovarian carcinoma, although results for other histological types remain inconsistent (Barnard et al., 2023).

Depression, in contrast, is a mental health disorder that often manifests as persistent feelings of sadness, a loss of interest or pleasure in previously enjoyed activities, low energy, feelings of guilt

or diminished self-worth, sleep disturbances, poor appetite, fatigue, and difficulty concentrating (Endriyani et al., 2022).

A study by Koswara, (2016) found that 40.9% of ovarian cancer patients experience depression, with 2.3% of those patients suffering from moderate depression and 38.6% showing mild depressive symptoms. Additionally, it was noted that 56.8% of ovarian cancer patients are between the ages of 31 and 50. The emotional burden brought on by cancer and its treatment is profound. Patients often face immense psychological challenges as they struggle to cope with their diagnosis, which can severely affect their mental and emotional well-being. Many patients tend to focus primarily on their physical health while neglecting the importance of maintaining their emotional well-being. However, it is now increasingly recognized that psychological health is just as important as physical health in supporting recovery and improving quality of life (Lestari et al., 2020).

Cancer is not merely a physical disease but a life-altering experience that brings immense emotional strain. For individuals diagnosed with ovarian cancer, the stress related to the diagnosis can trigger or exacerbate depressive symptoms. This emotional toll is often compounded by fears about the future, the uncertainty of treatment outcomes, and the long-term impact on one's quality of life. The intricate relationship between cancer diagnosis and depression highlights the importance of a holistic approach to treatment that addresses both physical and psychological needs.

Given these findings, understanding the intricate relationship between ovarian cancer and depressive symptoms is crucial for optimizing patient outcomes. This case report aims to examine the interplay between ovarian cancer and depressive manifestations, highlighting the importance of integrating mental and physical health care within oncology practice.

METHOD

This study employed a case report design to examine the association between ovarian cancer and depressive symptoms. This approach allowed for an in-depth exploration of the patient's clinical condition, psychological state, and treatment process, providing insight into the relationship between physical illness and mental health.

Data were obtained through a detailed review of the patient's medical records, clinical history, physical examination, and diagnostic findings. Psychological assessments were conducted using structured interviews and patient self-reports to document symptoms such as mood changes, loss of interest in daily activities, and feelings of hopelessness following the cancer diagnosis.

The analysis incorporated both psychological and biological perspectives to explain the emergence of depression in cancer patients. Psychosocial stressors, including the emotional impact of a life-threatening diagnosis, uncertainty about treatment outcomes, and fear of recurrence, were evaluated alongside biological mechanisms such as systemic inflammation and dysregulation of the hypothalamic pituitary adrenal (HPA) axis, which are known to influence depressive symptoms.

A comparative review of relevant literature was also undertaken to contextualize the findings within broader research trends. Peer-reviewed articles, cancer registry data, and guidelines from reputable organizations, including the American Cancer Society and the Indonesian Gynecological Oncology Association, were analyzed to support interpretation.

Ethical standards were strictly followed throughout the study. Patient confidentiality was ensured by excluding identifiable information, and all procedures adhered to institutional research ethics protocols. Special consideration was given to preserving the patient's psychological well-being and dignity during data collection and analysis.

This methodological framework integrates clinical observation, psychological evaluation, and literature synthesis to enhance understanding of how ovarian cancer and its treatment can affect mental health outcomes. It also reinforces the importance of a holistic care model that simultaneously addresses physical and psychological needs to improve patient quality of life and treatment adherence.

RESULT AND DISCUSSION

A 44-year-old woman presented to the outpatient clinic with progressive emotional and behavioral changes, primarily characterized by a marked loss of interest in activities she previously enjoyed. According to the patient, these symptoms began approximately three weeks prior to consultation and emerged shortly after she received a diagnosis of epithelial ovarian cancer four weeks earlier.

The patient reported experiencing severe fatigue and low energy levels, which significantly impaired her ability to perform even simple daily tasks, such as preparing meals, cleaning her home, or bathing independently. She expressed feelings of being "constantly exhausted," regardless of the amount of rest or sleep she obtained. Alongside these symptoms, she described a growing sense of hopelessness and helplessness, stating that she often questioned her ability to cope with her illness and feared what the future might hold.

Further exploration of her history revealed that she had been experiencing disturbances in her sleep pattern for the past week, including difficulty falling asleep and frequent awakenings throughout the night. She reported waking up multiple times feeling anxious and restless, which contributed to daytime drowsiness and further exacerbated her fatigue.

Additionally, the patient exhibited significant changes in eating behavior. Her appetite became erratic, alternating between periods of complete loss of appetite—during which she would skip meals entirely—and episodes of binge eating, where she consumed unusually large portions of food in a single sitting. Consequently, she experienced an unintentional weight gain of approximately 10 kilograms within the past month, which caused her additional distress regarding her physical appearance and overall health.

On clinical examination, the patient appeared visibly fatigued, with slowed psychomotor activity and a flat affect(Tuffahati et al., 2022). Her speech was soft and deliberate, and she required prompting to answer certain questions. Despite these findings, she remained oriented to time,

place, and person. Vital signs were within normal limits, and there were no immediate neurological deficits observed.

The patient reported no prior psychiatric history, and there was no known family history of mood disorders. However, she described experiencing overwhelming anxiety since learning about her cancer diagnosis, particularly when considering potential treatment complications and long-term survival. She had not yet started chemotherapy, as her case was still under multidisciplinary evaluation, and she expressed fear about the anticipated side effects of treatment.

To better understand the psychological component of her presentation, an assessment using the Patient Health Questionnaire-9 (PHQ-9) was conducted. Her score suggested moderate-to-severe depressive symptoms, consistent with her subjective complaints and observable behavior.

Ovarian cancer is a malignant tumor originating from the ovaries, characterized by various histological types, and it can affect individuals of all ages (Arbani et al., 2023). Depression is a common mental health disorder characterized by persistent sadness, loss of interest or pleasure, fatigue, feelings of guilt or low self-esteem, sleep disturbances, and impaired concentration. Studies suggest that poor physical function, younger age, advanced cancer stage, and limited access to chemotherapy are significant risk factors for mental health disorders among ovarian cancer survivors(Health, 2018).

As a life-threatening disease, cancer is a major source of psychological distress. Patients diagnosed with cancer often experience higher levels of stress than those with non-cancerous conditions, even when facing worse prognoses (Fatimah et al., 2023; Smith, 2015). From a psychological perspective, depression in cancer patients frequently develops as a response to chronic stress that exceeds their coping capacity. This condition manifests through persistent low mood, hopelessness, anhedonia, and helplessness (Smith, 2015). The patient in this case displayed classical depressive symptoms, including marked loss of interest, severe fatigue, psychomotor retardation, and pervasive despair after being diagnosed with epithelial ovarian cancer, which aligns with the diagnostic criteria for depressive disorder (Dirgayunita, 2016).

Depression may occur as either a normal emotional reaction or a pathological condition. In normal individuals, depressive mood can emerge as a transient response to stressful life events and usually resolves with adequate coping and social support. Conversely, pathological depression is a more severe, prolonged condition involving diminished responsiveness to external stimuli, decreased self-worth, and persistent hopelessness. The patient's condition fits the pathological form, as her depressive symptoms interfered with daily functioning and were accompanied by appetite changes, sleep disturbances, and cognitive slowing.

Our analyses show that ovarian cancer survivors have a higher risk of developing mental illnesses compared to the general population. These include adjustment disorder, anxiety disorder, cognitive impairment, mood disorder (including bipolar and depressive disorders), schizophrenia, and substance-related disorders. Patients with advanced or distant-stage ovarian cancer are at even greater risk for depression. Studies have also reported that ovarian cancer survivors with comorbid mental illnesses experience shorter survival times than those without such diagnoses. These findings demonstrate the considerable psychological burden faced by ovarian cancer patients and emphasize the importance of mental health support within oncology care (Hu et al., 2022).

Several risk factors contribute to the development of depression among ovarian cancer patients. The experience of receiving a life-threatening diagnosis, undergoing major surgery, managing medication side effects, and coping with chemotherapy or radiation can severely impact psychological well-being (Ezendam et al., 2014). Uncertainty about prognosis and fear of recurrence can further intensify emotional distress, creating a continuous cycle between psychological stress and disease progression. This aligns with the biopsychosocial model, which proposes that both biological mechanisms (such as inflammation and hypothalamic-pituitary-adrenal axis dysregulation) and psychosocial factors contribute to the onset of depression in cancer patients.

From an etiological standpoint, several factors have been associated with ovarian cancer development, including a family history of ovarian, breast, or colon cancer, BRCA1 and BRCA2 gene mutations, age over 50 years, nulliparity, late childbearing, prolonged hormonal contraceptive use, and obesity(Handoko et al., 2023). Although the patient in this case was 44 years old, slightly younger than the typical high-risk group, her clinical presentation suggests that hormonal or genetic factors may have played a role in disease onset. These biological predispositions, combined with psychological stress after cancer diagnosis, may have intensified her emotional and behavioral changes, leading to significant depressive symptoms (Kamajaya et al., 2021).

Supporting these findings, previous studies have identified additional risk factors related to reproductive and lifestyle factors. Furthermore, a study by Simamora et al., (2018) highlighted that early menarche significantly increases the risk of ovarian tumors. Parity also plays a protective role against ovarian malignancy, where women who have never married or have low parity show a higher incidence of ovarian cancer compared to multiparous women. In addition, (Momenimovahed et al., 2019) found that a positive family history of breast, ovarian, prostate, or uterine cancer substantially elevates the risk of developing ovarian cancer. Obesity is also identified as a significant risk factor, contributing to more than one-third of ovarian cancer cases globally. Interestingly, the use of contraceptives, particularly oral contraceptives, has been associated with a reduced risk of ovarian cancer. Women who have used oral contraceptives for six years or more demonstrate a significantly lower risk, and the longer the duration of use, the greater the protective effect.

Biologically, cancer treatments such as surgery, chemotherapy, and radiotherapy can induce the release of damage-associated molecular patterns (DAMPs) from injured tissues. These molecules activate immune cells through pattern recognition receptors, stimulating nuclear factor kappa B (NF-ϰB) and promoting the secretion of pro-inflammatory cytokines such as interleukin-1 (IL-1), interleukin-6 (IL-6), tumor necrosis factor alpha (TNF-α), and interferon alpha (IFN-α) (Smith, 2015). These cytokines can influence the brain and contribute to depressive symptoms by altering neurotransmitter balance. For instance, TNF-α and IL-1 increase serotonin and noradrenaline reuptake activity through the p38 MAPK pathway, reducing synaptic neurotransmitter availability and promoting depressive behaviors.

Inflammatory responses also suppress brain-derived neurotrophic factor (BDNF), which is crucial for neurogenesis. Reduced BDNF levels and impaired neurogenesis are strongly linked to depression. Moreover, cytokines such as TNF-α enhance the activity of indoleamine 2,3-

dioxygenase (IDO), an enzyme that breaks down tryptophan, the precursor of serotonin. Decreased serotonin availability subsequently worsens depressive symptoms (Smith, 2015).

Liu & Yang, (2019) observed that depression levels among ovarian cancer patients decreased after treatment as patients began to accept their condition. However, many continued to experience anxiety related to treatment side effects, financial strain, and survival uncertainty. Younger patients were particularly vulnerable to anxiety and depression, likely due to disrupted life goals and concerns about their future quality of life(Priastana et al., 2016).

Social withdrawal is another common manifestation of depression in cancer patients. Many isolate themselves due to fear of stigma or feeling misunderstood by others. Patients may also perceive themselves as a burden to their families, which deepens their sense of isolation (Lestari et al., 2020). Beyond emotional consequences, physical side effects such as hair loss, skin changes, and sexual dysfunction can affect self-esteem and body image, thereby influencing communication patterns and overall mental well-being (Kamajaya et al., 2021; Khazaei et al., 2021).

In conclusion, this case demonstrates how ovarian cancer can trigger complex psychological and biological processes that contribute to depressive disorder. Integrating psychological evaluation and supportive therapy into oncologic management is vital for improving patients' quality of life, treatment adherence, and overall outcomes. A comprehensive, patient-centered approach that addresses both mental and physical health is essential for the holistic care of ovarian cancer survivors(Eng et al., 2018; Sung et al., 2021).

CONCLUSION

Individuals diagnosed with cancer typically face greater psychological stress compared to those with non-cancerous conditions. Psychosocially, depression emerges when the emotional burden of illness surpasses an individual's coping capacity. Biologically, cancer treatments such as surgery, chemotherapy, and radiotherapy can induce inflammatory responses that alter neurotransmitter balance, particularly through reduced serotonin (5-HT) levels, thereby contributing to depressive symptoms. The complex interplay between psychological stress and inflammatory processes highlights the importance of an integrated, multidisciplinary approach to cancer management one that simultaneously addresses both mental and physical health to optimize patient outcomes.

REFERENCE

Arbani, R. A., Latief, K., Syahruddin, F. I., Hamsah, & Hasbi, B. E. (2023). Relationship between level of knowledge and attitude with early detection behavior of ovarian cancer at Ibnu Sina Hospital Makassar. *Fakumi Medical Journal*, *3*(9), 660–669.

Barnard, M. E., Keller, J. P., Le, N., Antoniou, A. C., Easton, D. F., Pharoah, P. P. D., & Kelemen, L. E. (2023). Familial risk of epithelial ovarian cancer after accounting for gynaecological surgery: A population-based study. *Journal of Medical Genetics*, *60*(2), 119–127. https://doi.org/10.1136/jmedgenet-2021-108395.

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, *68*(6), 394–424. https://doi.org/10.3322/caac.21492.

Cankurtaran, I., & Halis Gunel, M. H. (2024). Fundamentals of cancer treatment service design: a guideline considering the healing environment concept. *Facilities*, *42*(5–6), 446–471. https://doi.org/10.1108/F-12-2022-0158

Dirgayunita, A. (2016). Depresi: Ciri, Penyebab dan Penangannya. *Journal An-nafs*, *1*(1), 1–15.

Doubeni, C. A., Doubeni, A. R., & Myers, A. E. (2016). Diagnosis and management of ovarian cancer. *American Family Physician*, *93*(11), 937–944. https://www.aafp.org/pubs/afp/issues/2016/0601/p937.html

Endriyani, S., Lestari, R. D., Lestari, E., & Napitu, I. C. (2022). Gangguan Mental Emosional dan Depresi pada Remaja. *Healthcare Nursing Journal*, *4*(2), 429–434.

Eng, K. H., Kuchenbaecker, K. B., Michailidou, K., Beesley, J., Dennis, J., Dunning, A. M., & Sellers, T. A. (2018). Paternal lineage early-onset hereditary ovarian cancers: A Familial Ovarian Cancer Registry study. *PLoS Genetics*, *14*(1), 1007194. https://doi.org/10.1371/journal.pgen.1007194

Ezendam, N. P. M., Pijlman, B., Bhugwandass, C., Mols, F., Pruijt, J. F. M., & Husson, O. (2014). Chemotherapy-induced peripheral neuropathy and its impact on health-related quality of life among ovarian cancer survivors: Results from the population-based PROFILES registry. *Gynecologic Oncology*, *135*(3), 510–517. https://doi.org/10.1016/j.ygyno.2014.09.016

Fatimah, S., Latief, S., Syahruddin, F. I., Nulanda, M., & Mokhtar, S. (2023). Faktor Risiko Penderita Kanker Ovarium di Rumah Sakit Ibnu Sina Makassar. *Wal'afiat Hospital Journal*, *4*(1), 43–56.

Handoko, A. L., Jayadi, T., Putra, E. R. K., & Kusumosih, T. A. R. (2023). Hubungan antara obesitas dengan kanker ovarium di Rumah Sakit Bethesda Yogyakarta. *Jurnal Kedokteran Meditek*, *29*(1), 27–33. https://doi.org/10.36452/jkmeditek.v29i1.3548.

Health, M. (2018). *Health Research and Development Agency, Ministry of the Republic of Indonesia*. https://repository.

Hu, S., Baraghoshi, D., Chang, C.-P., Rowe, K., Snyder, J., Deshmukh, V., Newman, M., Fraser, A., Smith, K., Peoples, A. R., Gaffney, D., & Hashibe, M. (2022). Mental health disorders in ovarian cancer survivors in a population-based cohort. *National Library of Medicine*, *22*(2), 1801–1812.

Kamajaya, I. G. N. A. T., Brahmantara, B. N., & Wirawan, A. N. A. P. (2021). Profile of ovarian cancer patients in Mangusada Badung Regional Public Hospital. *Indonesian Journal of Cancer*, *15*(3), 117. https://doi.org/10.33371/ijoc.v15i3.117.

Khazaei, Z., Sohrabivafa, M., Momenabadi, V., Goodarzi, E., Adineh, H. A., & Dehghani, S. L. (2021). Worldwide incidence and mortality of ovarian cancer and Human Development

Index (HDI): GLOBOCAN sources and methods 2018. *Journal of Preventive Medicine and Hygiene*, *62*(2), 174– 184. https://doi.org/10.15167/2421-4248/jpmh2021.62.2.1625.

Koswara, J. (2016). Description of depression levels in ovarian cancer patients at H. In *Adam Malik General Hospital in 2016'*.

Lestari, A., Budiyarti, Y., & Ilmi, B. (2020). Study Fenomenologi: Psikologis Pasien Kanker yang Menjalani Kemoterapi. *Suaka Insan Nursing Journal*, *5*(1), 1–12.

Liu, H., & Yang, L. (2019). Dynamic changes of depression and anxiety after chemotherapy in ovarian cancer patients. *National Library of Medicine*, *98*(31), 1–5.

Millet, B. (2024). Integrating User-Centered Design Into the Sylvester Firefighter Cancer Initiative's Personal Exposure Reporter. *Ergonomics in Design*, *32*(2), 19–24. https://doi.org/10.1177/10648046211051196

Momenimovahed, Z., Tiznobaik, A., Taheri, S., & Salehiniya, H. (2019). Ovarian cancer in the world: Epidemiology and risk factors. *International Journal of Women's Health*, *11*, 287–299. https://doi.org/10.2147/IJWH.S197604.

Nuseibeh, B. Z., Johns, S. A., Shih, P. C., Lewis, G. F., Gowan, T. M., & Jordan, E. J. (2024). Co-Designing the MOSAIC mHealth App With Breast Cancer Survivors: User-Centered Design Approach. *JMIR Formative Research*, *8*. https://doi.org/10.2196/59426

Pitasi, O., Hildebrand, D., Liebe, R., Joyce, J., Nagykáldi, Z., Robertson, M. C., & Braun, A. (2024). Hiding in plain sight: Cooperative Extension as an underutilized approach to improving cancer survivorship outcomes in underserved populations. *Journal of Cancer Survivorship*. https://doi.org/10.1007/s11764-024-01687-z

Priastana, I. K. A., Agustini, I. G. A. R., & Kio, A. L. (2016). Hubungan Spiritual Well-Being dengan Tingkat Depresi Pada Lanjut Usia. *Nurseline Journal*, *1*(2), 45–53.

Simamora, R. P. A., Hanriko, R., & Sari, R. D. P. (2018). Hubungan usia, jumlah paritas, dan usia menarche terhadap derajat histopatologi kanker ovarium di RSUD Dr. H. Abdul Moeloek Bandar Lampung tahun 2015–2016. *Majority*, *7*(3), 7–13. https://juke.kedokteran.unila.ac.id.

Smith, H. R. (2015). Depression in cancer patients: Pathogenesis, implications, and treatment (Review. *Journal of Cancer Research and Clinical Oncology*, *141*(9), 1509–1514.

Society, A. C. (2020). *Ovarian cancer: Causes, risk factors, and prevention*. https://www.cancer.org/cancer/acs-medical-content-and-news-staff.html

Suastari, N. M. P. (2017). Pemeriksaan radiologi untuk deteksi kanker payudara. *Cermin Dunia Kedokteran*, *45*(4), 298–302. http://www.cdkjournal.com/index.php/CDK/article/view/837.

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, *71*(3), 209–249. https://doi.org/10.3322/caac.21660

Tuffahati, H., Harsono, A. B., Aziz, M. A., Mantilidewi, K. I., & Erfiandi, F. (2022). Overview of clinical and histopathological characteristics. *Obgynia*, *5*(1), 20–30.